# THE SCHOOL REVIEW

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## Educational News and Editorial Comment

### A Former Editor Retires

The educational world has known for some time that Charles Hubbard Judd, head of the Department of Education of the University of Chicago, having reached the age of retirement, will sever his official connection with the University at the close of the current academic year. The fact of his retirement has been commented on widely in the educational and the lay press, and many educational meetings, notably those held in the late winter at Atlantic City, have been given over to doing honor to him.

The *School Review* and the *Elementary School Journal* have special reason to mark Professor Judd's retirement with a red letter. Reference to his connections with these journals may, paradoxically, begin with the assertion that in their pages he was never identified as editor by name. The nearest approach to such a designation was for the year 1917–18, when he was listed as chairman of a "joint editorial committee." Persons aware of the actual manner of operation of the departmental publications know that during the twelve-year period from September, 1918, to September, 1930, he discharged all the responsibilities of editorial direction of both journals and of the Supplementary Educational Monographs. During this period these

publications were issued as being "edited by the Faculty of the School of Education of the University of Chicago" through an editorial committee. In the list of the committee members Professor Judd's name appeared in alphabetical order and without special designation for carrying major responsibility. Even this long and arduous period of editorial direction represents merely a fraction of his service to the *School Review* and the *Elementary School Journal*, for he manifested a constructive interest in them from the beginning of his connection with the University in 1909, even during the years when others were in editorial charge. This interest, continuing throughout the twenty-nine years of his official connection with the University, has unquestionably been the most important factor in winning for these journals their present standing among educational periodicals. Although it is, by many years, too soon, in view of Professor Judd's vigor of body and mind, to undertake appraisal of his many services to American education, we venture the prediction that, when the time comes to make it, counted among his chief contributions will be his furtherance of the interests of educational journalism.

While the purpose here is to signalize the termination of Professor Judd's connection with the University of Chicago as this connection has affected the publications of the Department of Education, we are naturally led to make some reference to his service to the larger scholarly field of education through his long period of leadership in the department. A fitting way of doing so in a few words comes to hand in a statement concerning Professor Judd made by the man who will succeed him in the autumn as chairman of the department, Professor Ralph W. Tyler. The statement quoted was made at the University of Chicago luncheon during the convention in Atlantic City.

> The Atlantic City meetings illustrate the high regard in which Mr. Judd is held by all the varied educational groups gathered together here. This convention has been a continuing series of tributes to him. Those of us who have been students at the University of Chicago, having had closer contacts with him, are particularly conscious of his stimulation and direction.
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> Among the many contributions Mr. Judd has made to my thinking about education, there are three which have profoundly influenced me. They have colored my work and my outlook.

In the first place, Mr. Judd emphasizes the fact that human behavior is more complex than the action of a machine and is not helpfully interpreted in mechanistic and atomistic terms. This idea has continually directed my work in testing.

In the second place, he has iterated and demonstrated the idea that educational problems can be most effectively solved through careful study and the collection of pertinent evidence rather than through heated discussion. This point of view has been to me a guiding stimulus for educational research.

In the third place, he has stood for thorough rather than superficial study of educational problems. At a time when social problems are being settled by tradition or by offhand solutions, the emphasis on fundamental investigations and thorough studies of all relevant aspects has been particularly salutary. It has given us an impressive ideal to counteract the temptation of spectacular superficiality.

To assume the chairmanship of the Department of Education when Mr. Judd retires is a deep privilege and a great responsibility. As far as I can, I shall use my influence to continue these same three emphases.

In addition to containing appropriate commendation of essential features of Professor Judd's educational leadership, the statement is indicative of the point of view with which the new chairman comes to the department.

## Here and There among the High Schools

*Exchange assembly programs with other high schools.*—William R. Boone, principal of the senior high school at Orlando, Florida, submits a brief description of what he refers to as "one of the best things we have started this year." The reference is to exchange assembly programs with other high schools. On one occasion more than two hundred pupils from Orlando "put on a program" at the Seminole County High School at Sanford, Florida. Assembly programs have been exchanged during the year with six high schools, and nothing has been repeated on these programs. Pupils of Principal Boone's school are enthusiastic over the programs that other schools have presented in this arrangement. The programs are accorded "splendid attention and marked appreciation and applause in appreciation." He mentions the fine spirit that has grown up among the high-school student bodies of Central Florida.

*A monthly list of articles for teachers.*—Maud Minster, librarian in the senior high school of Altoona, Pennsylvania, has sent a sheet of "Magazine Articles of Interest to Teachers." We are informed

that such a list is prepared, printed, and distributed to members of the staff for each month of the school year. The list at hand, the one for March, names articles in thirteen magazines, five of these being general periodicals and the remaining eight being educational journals.

*A scholarship requirement for high-school graduation.*—For some time it has been in the plans of the *School Review* to provide a description of a scholarship requirement that has been in operation for the past several years in the high schools of Kansas City, Missouri. The requirement is one of a type aimed at raising standards of scholarship. Fortunately for our plans, we received, not long ago, not merely an explanation of the requirement but also the report of an investigation to determine its effect. The explanation and the investigation are combined in the article by F. William Paul appearing in this issue. As far as is disclosed by the investigation, the requirement has little effect on scholarship. Its most notable result appears to be to lengthen somewhat for less capable pupils the period needed to complete requirements for graduation, and in this respect it seems to serve more as a means of recognizing individual differences than as a way of elevating standards of scholarship. Authorities in other schools and systems where the institution of such plans is contemplated will be well served by giving the article a careful reading.

*A new grouping of the offering into a "civic" curriculum.*—In the high school at Danbury, Connecticut, of which Roscoe C. Bassett is principal, portions of the offering have been regrouped for what is there called a "civic" curriculum. It is planned to prepare girls for hospital training schools, library work, ordinary retailing jobs, and simple homemaking. Boys are expected to get from it the "essentials of a high-school education" without preparing for particular occupations or for entrance to higher institutions. The work of the curriculum is to be taught without attempting to set up scholarly standards or expecting to reach high attainments. Home-work assignments are limited, especially in the last two years, when five subjects are suggested. Space does not permit giving the detailed names of all the subjects, but the totals in the different fields are as follows: English, four units; science, three units; social studies, four

units; mathematics, one unit; art, one unit; and commerce, four and a half units.

*Noon-hour social games in a junior high school.*—For some years Whittier Junior High School at Lincoln, Nebraska, of which C. L. Culler is principal, has been developing a program of social games for the noon hour. The development began with an athletic program, including inter–home-room tournaments in such games as basketball, baseball, soccer, volleyball, paddle tennis, tin-can cricket, and Nebraska ball. When weather was inclement or the grounds were unfit for use, the games were continued indoors. Although the program was loyally supported, some pupils failed to enter into the activities provided and became a problem by frequenting a drug store, several grocery stores, a barber shop, a shoe store, railroad yards, commercial warehouses, factories, and streets near the school premises. The difficult disciplinary and social problems that emerged from the unsupervised activities in the neighborhood have been much ameliorated by the extension of the recreational program in the school. This extension began with the opening of a reading-room, where newspapers and magazines might be read. Comic strips were especially popular. The school library was opened for general reading. In the autumn of 1936 the City Recreation Board made possible a further expansion to include games like checkers, lotto, dominoes, jigsaw puzzles, anagrams, and parcheesi. This year a beginning has been made with handcrafts. The whole program has the co-operation of pupil committees that see to its effective administration. No small degree of ingenuity is manifest in the resources drawn on to supply the necessary equipment at no cost. It is Principal Culler's opinion that, on the whole, the activity has played a constructive part in eliminating unwholesome and unsocial play and that pupils are learning to make better use of their leisure time.

*Extensive use of field-study technique.*—In connection with a course on economic and social problems in Grade XII of the Roxbury High School, in Succasunna, New Jersey, of which V. F. Group is principal, much use is made of observation through field trips. Resort to field-study technique began four years ago. With the exception of the trip in connection with the study of marketing, no expedition

extends beyond a radius of ten miles from the local community. All trips are taken during school hours, and the cost is carried by pupils, since no subsidy is as yet available from the school authorities. The length of time ranges from an hour to a full day, the longest expedition (to the early morning markets and security exchanges in New York City) leaving the school at five in the morning. The trips relating to economic problems have included observation in a commercial bank, clearing-house, Federal Reserve Bank, tax collector's office, early morning market, security exchange, auction, retail store, pushcart market, telephone exchange, hosiery factory, newspaper plant, railroad switch tower, railroad terminal and roundhouse, telegraph office, and ocean liner. For information relating to social problems, trips have been made to an automobile factory, union headquarters, municipal police headquarters, state police headquarters, county jail, county criminal court, municipal hospital, county tuberculosis sanatorium, state hospital for mental diseases, homes ranging from a squatter's cabin on the dump to a millionaire's estate, county board of freeholders, township committee, and Navy and War Department arsenals. Itineraries and procedures in systematic observation have been carefully worked out.

*Educational excursions awarded for success in competitive examinations.*—The following description of a plan of awarding educational excursions has been supplied by William A. Cook, principal of the high school at Dayton, Kentucky.

For the fourth year Dayton High School, a six-year school enrolling five hundred pupils, is sponsoring, as the main project of the student council, an educational excursion for pupils who win in competitive examinations administered each May.

Competitions occur in fifteen year-courses, representing all grades and distributed to include English, mathematics, natural science, social studies, commercial branches, and foreign language. The list is altered slightly each year in order that competition may be provided in the subjects of largest enrolments. Industrial arts and home economics, the only important departments not represented, have not been included because of their rather low enrolments. The fifteen subjects selected give representation to as many teachers as possible.

A pupil may compete in any course in which he is enrolled for credit. This plan occasionally permits upper-class men to compete against lower-class men, but not to an unsatisfactory degree. A pupil may enter more than one com-

petition if he desires and the examination schedule permits. The number of participants has grown until last year 120 pupils came for these Saturday examinations and submitted in all more than 200 papers.

Two awards are made to successful competitors. One is a two-day, all-expense excursion of five hundred miles by car through their own state. These pupils visit the capital, the state university, the federal prison for narcotic addicts, a national cemetery, Camp Knox (the federal gold depository), a state insane hospital, the state home for feeble-minded, the birthplace of Lincoln, the Old Kentucky Home, Fort Harrod, and other historic and scenic points. Teachers volunteer to drive their cars at ten dollars each, cutting the expense to five dollars a pupil.

The second award is a four-day, all-expense excursion of about 1,250 miles by car to the national capital, Arlington Cemetery, Mount Vernon, Gettysburg, and intervening points of interest. This trip costs fourteen to fifteen dollars a pupil.

The first award is made to one pupil in each competition—fifteen in all. The second is made to only five pupils and can go only to those who have won the first award in some previous year. If more than five qualify, the five nearest graduation are taken.

If a competitor wins first in two events, an award goes to the pupil taking second in the competition with most entrants. When a winner qualifies for the second award, the runner-up receives first award for that competition. If the latter has previously received the first award or if for any reason he is unable to take the trip, the pupil in third place goes. In one case in 1937 it was necessary to take a pupil as far down as seventh place in order to make the award. This uncertainty increases the field of competitors.

Each examination is set and administered by the teacher of the subject, and the results are determined by him. No teacher may coach bright pupils and neglect the mass. His reputation is not unfairly at stake, as in interscholastic competition, nor are any unsatisfactory regulations imposed from outside the school. In three years ties have occurred more than once, but they have been settled by drawing lots or continuing the examination. No disagreement has ever arisen, and no criticism has reached the school. There has never been any problem of conduct on the trips.

## The Pronouncement of a Teachers' Union on Vocational Education

Proposals by the city's school administration in Chicago to vocationalize the high schools have elicited much heated discussion among teachers and patrons. Many individuals and organizations have been moved to state their positions on the subject. One of these organizations is the Chicago Teachers Union, which has a committee on vocational education, of which Florence E. Clark is

chairman. Not long ago the committee made its report, now approved as the Union's position on vocational education in Chicago. Except for an introductory paragraph defining vocational education, we quote in full the committee's report.

If a school system is truly democratic, it should give vocational training to those going into the skilled and semiskilled trades and clerical occupations, as well as to those going into the professions. To be sound, a vocational-education program, serving those not going into the professions, should have the following characteristics.

1. A scientific survey of occupations should precede the selection of the vocational subjects to be taught. The survey and study of occupations should be continuous to prevent the training of persons in obsolete jobs and to assure training for those jobs where there is a demand. The survey should be carried on by scientific methods and by a staff sufficiently large to assure that full information is obtained. Pressures by manufacturers of machines, pressures by employers who desire an oversupply of labor, and pressures by groups who wish to restrict the supply of labor to the extent that the needs of the future are not considered, are not desirable means for determining what vocational subjects should or should not be taught.

2. Generally, the school should be situated in the neighborhood of the businesses and industries where exist the kinds of jobs for which the school is to train. This will permit the use of the school by those adult workers who may need additional training or retraining as well as by the high-school student and will give a reality of experience to the young person still in school. The purchase of land to accommodate some owner, the use of land already owned by the Board of Education either in a residential district or in an industrial district not possessing the kinds of jobs for which it is giving training, should not determine the location of a vocational high school.

3. The school should be built up slowly through experimentation and scientific study. It should be the result of the development of needs, determined in close and constant co-operation of the employers, workers, teachers, and others in the community who are familiar with the problems involved. It should always be flexible and subject to change. A school planned on extravagant lines, on a colossal scale by an armchair planner, will soon be filled with obsolete machines and, what is far more important, will be training young persons for jobs that do not exist.

4. The vocational training should be placed close to the terminal point of the young person's general education, should not be a substitute for it, nor should it be longer in time than is necessary to gain the desired skills. This warning is necessary because young persons are not acceptable to industry and business in many instances until seventeen or eighteen years of age and because it is recalled that the bulk of the semiskilled and unskilled jobs require but a few weeks' or a few months' training. . . . .

5. Guidance (vocational as well as educational) based upon the best, known practices should precede the transfer from the elementary or high school to the specialized or vocational high school and should continue in the vocational high school through to placement. Guidance in a democracy means offering to young persons the facts of the situation—facts about themselves and facts about the economic world, accumulated by all scientific means possible—and permitting the individual to determine how best he can function in the social and economic world of which he is a part. This requires constant training of the guidance personnel to do this job, persons not only trained in the testing skills and educational procedures but also aware of the economic world in which they live. This warning is necessary because of the tendency of some administrators and teachers to fill the vocational schools with children who are problems because of behavior or mentality. This warning is also necessary because of the existence so often of a tendency to "oversell" certain schools and certain classes by the use of all advertising devices and not by the use of sound vocational guidance.

6. The vocational schools must be accredited so far as their academic subjects are concerned in order that the students may transfer back to the general and technical high schools which permit of entrance to college, without loss of academic credits. This is necessary to preserve that mobility of our population, an essential characteristic of our democracy, and thus to prevent the splitting-up of our population into social classes.

7. The teachers of the academic subjects should meet the requirements established for teachers in the general academic high school. For those teaching the vocational subjects, rules and regulations should be established on a regular, civil-service, promotional basis, although it is recognized that it is necessary that different training and experience requirements be established. It is further recognized that there be a democratically organized, in-service training program for the teachers.

8. Vocational education must include not only vocational subjects and their related material such as science and mathematics. In addition, it must offer ample opportunity for the continued pursuit of the English language, the vehicle for ideas, and that of the social studies, in order that the working population may be trained not only to earn a living but to become citizens in our political and industrial democracy as well.

9. Finally, at all points in expanding the offering of vocational education, honest thinking and honest speaking must prevail. Impressions must not be given that Chicago has never before had vocational education, that academic and technical high schools have never trained young persons to take their places in the work world. Nor must the impression be given that vocational education is a panacea for unemployment and that training for a job necessarily means obtaining a job. Truths must be told, and young people must be taught to think realistically.

For the most part the pronouncement seems entirely sound. The sole exception taken here is to what appears to be the assumption, through use of the term "vocational high school" and by the manner of description under Items 2 and 3, that vocational schools will be distinct from other secondary schools in the system. Our standpoint is that America's secondary schools must be classless schools and that separate vocational schools will conduce to social stratification. It is our observation that the federal administration of vocational education has fostered separation. We point out that, in the vast body of the literature of vocational education, there is no objective evidence of the necessity for separate schools for this type of education—notwithstanding the fact that the federal authority in vocational education has had twenty years in which to investigate this most critical of problems. All that can be mustered in support of separation are the "experience" and opinions of persons in charge of vocational education and example from stratified, undemocratic European societies.

We may be in error to infer this assumption of distinct vocational schools in the otherwise sane report of the Union's committee. If so, we retract the stricture. However, we would still keep it in force on advocates of separation until the evidence in proof of necessity for separation is in hand.

## Another "Here and There" of Fugitive Publications

Attention is here directed to several fugitive publications which will be of interest to many persons at work in secondary schools. The statements do not attempt summaries of the publications but are intended rather to serve as guides to readers who may care to make further inquiries concerning the materials or to request copies from the persons or agencies distributing them.

*Administrative practices in large high schools.*—From Frederick L. Pond, principal of the high school at Meadville, Pennsylvania, has been received a copy of a twenty-one–page mimeographed report, "Administrative Practices in the Large High Schools of Pennsylvania." The 182 high schools represented are classified in three groups by type (six-year, three-year, and four-year) and again in three groups by size of enrolment (500–999; 1,000–1,499; and 1,500–

5,600). Tabulations and interpretations reproduced are concerned with the organization of the curriculum, credits and requirements for graduation, time allotments in the schedule, and matters of staff personnel (assistant principals, size of staff, pupil-teacher ratio, school clerks, and compensation of personnel). A value of the evidence reported resides in the possibility of comparing conditions in the school in which one may be at work with those in the large high schools of Pennsylvania.

*Practices reported at a parliament of a state principals' association.*—There comes belatedly, as concerns its date of publication, from a tenth annual "principals' parliament" held at Everett, Washington, more than a year ago, the report of its proceedings, entitled "Effective School Practices." The organization holding the parliament is the Washington High School Principals' Association. The content of the document, which contains eighty-six mimeographed pages, is chiefly in the nature of reports of practices carried on in secondary schools of the state. Illustrative of the captions are "High-School Boys in Reforestation," "Public Schools and Public Forums," "How the Principal's Office Is Getting Next to Students," "Academic Readiness of High-School Pupils," and "A Class in Personal Achievement." The editor of the report is Frank Jones Clark, who was president of the organization. In his Foreword the editor quotes Dean Uhl, of the University of Washington, as expressing the opinion that these principals' parliaments have been highly influential in the policies and practices of schools in the state. A charge of seventy-five cents is made for copies of the report, which may be secured from Miss Lily C. Holt, of the Roosevelt High School in Seattle.

*Library aids for teachers.*—Miss Zaidee Brown, librarian at the New Jersey State Teachers College at Montclair, New Jersey, has sent information concerning certain library aids which were prepared for the use of local teachers but which are suitable for use by teachers elsewhere. One of these, "Some Library Aids for Teachers," was prepared by Miss Brown herself in order to bring to the attention of teachers and teachers in training some of the well-known aids and also some recent publications that may be unfamiliar even to teachers well informed about ordinary library tools. The list extends through eight mimeographed pages, and copies are for sale

at ten cents each by the Vertical File Service of the H. W. Wilson Company, 950 University Avenue, New York City. Other more specialized lists, compiled in the same library, that may be obtained at the address indicated are the following.

"Bibliography of Lists of Visual Aids." Compiled May, 1937, by E. Winifred Crawford and Zaidee Brown. Pp. 7. $0.10.

"References on Teaching Some of the English Classics." Compiled June, 1937, by Anne Banks Cridlebaugh. Pp. 21. $0.25.

"List for Teachers of Modern Languages." Compiled November, 1937, by Lili Heimers. Pp. 19. $0.20.

"List for Teachers of German." Compiled February, 1938, by Lili Heimers. Pp. 22. $0.20.

*A formulation of purposes of secondary education.*—A committee appointed by Lloyd W. King, state superintendent of public schools in Missouri, has prepared a four-page statement of "Philosophy and Purposes of Secondary Education in Missouri." The statement was prepared at the time of inaugurating a curriculum revision for secondary schools of the state and is, therefore, set up as a working formulation subject to revision. The folder is being distributed from the office of the Department of Public Schools, Jefferson City, Missouri.

## Conference of Administrative Officers of Public and Private Schools

During the week of July 18–22, 1938, a conference of administrative officers of public and private schools will be held by the Department of Education of the University of Chicago in the Club Room of Judson Court, College Residence Halls for Men, for the discussion of important problems in school organization, administration, and supervision. The morning programs will consist of lectures by members of the Department of Education and visiting instructors and the afternoon programs of separate round-table discussions for superintendents and principals. Programs of the conference will be mailed to anyone applying to Professor William C. Reavis, Department of Education, University of Chicago.

Room and board will be provided, to the extent of the available capacity, in Judson Court for the week, Monday to Friday, for sixteen dollars. Reservations may be made through William J. Mather, Bursar of the University of Chicago.

The conference is open without fee to students registered in the summer quarter and to administrative officers of public and private schools who desire to attend. The general theme of the conference, for which the complete program is given below, is "Critical Issues in Educational Administration."

Monday, July 18

BEARING OF SOCIAL AND ECONOMIC CHANGE ON PUBLIC-SCHOOL ORGANIZATION AND ADMINISTRATION

"Change in Composition and Character of the School Population," John Dale Russell, Professor of Education; Secretary of the Department of Education, University of Chicago

"Change in Ability of Urban Units To Support Schools," Newton Edwards, Professor of Education, University of Chicago

"Change in Opportunities Provided by Society for Youth after Leaving School," Paul W. Terry, Head of Department of Psychology, University of Alabama; Visiting Professor of Education, University of Chicago (Summer, 1938)

Tuesday, July 19

MAINTAINING THE PROPER BALANCE BETWEEN GENERAL AND VOCATIONAL EDUCATION IN URBAN SCHOOL SYSTEMS

"What the Federal Government Might Do To Assist," Floyd W. Reeves, Professor of Education, University of Chicago

"What City School Systems Might Do To Improve the Present Situation," George A. Works, Professor of Education; Dean of Students and University Examiner, University of Chicago

"What Separate Vocational Schools Have Contributed to the Solution of the Problem," William F. Rasche, Principal, Milwaukee Vocational School, Milwaukee, Wisconsin

Wednesday, July 20

PROVIDING EFFECTIVE GUIDANCE UNDER PRESENT CONDITIONS IN ELEMENTARY AND SECONDARY SCHOOLS

"Delimit Guidance and Restrict Efforts to Services That the Schools Can Actually Provide," William C. Reavis, Professor of Education, University of Chicago

"Guidance Functions That Can Be Performed by Teachers and Regular School Officers," DeWitt S. Morgan, Superintendent of Schools, Indianapolis, Indiana

"Guidance Functions That Should Be Attempted Only by Specially Trained Functionaries," Frank N. Freeman, Professor of Educational Psychology, University of Chicago

Thursday, July 21

DEVELOPING EFFECTIVE TYPES OF IN-SERVICE TRAINING FOR TEACHERS IN URBAN SCHOOL SYSTEMS

"Improvement of Instruction in High Schools," Frank A. Jensen, Superintendent, La Salle–Peru Township High School and Junior College, La Salle, Illinois

"Clinics for Pupils Deficient in Fundamental Subjects," William S. Gray, Professor of Education; Executive Secretary, Committee on the Preparation of Teachers, University of Chicago

"Competent Supervisory Leadership," E. E. Oberholtzer, Superintendent of Schools, Houston, Texas; Visiting Professor of Education, University of Chicago (Summer, 1938)

Friday, July 22

MEETING THE PROBLEM OF POLITICAL INTERFERENCE IN CITY-SCHOOL ADMINISTRATION

"The Nature and Significance of Political Influence in City-School Administration," Nicholas Moseley, General Education Board, New York City

"How To Meet the Problem of Political Interference with a Sound Public-Relations Program," Nelson B. Henry, Associate Professor of Education, University of Chicago

"The Selection of Personnel through the Introduction of Civil-Service Administration as a Means of Eliminating Political Influence in the Administration of City Schools," A. R. Hatton, Professor of Political Science; Head of Department of Political Science, Northwestern University

## WHO'S WHO IN THIS ISSUE

O. I. FREDERICK, associate professor of education at the University of Mississippi. LUCILE J. FARQUEAR, graduate student at the University of Mississippi. RUTHERFORD B. PORTER, guidance counselor and teacher of mathematics at Meadville High School, Meadville, Pennsylvania. STEPHEN GARY, teacher of commercial law and of junior business training at Memorial High School, Campbell, Ohio. F. WILLIAM PAUL, teacher of mathematics at Southwest High School, Kansas City, Missouri. ROBERT WHITE, JR., principal of the Burlington High School and Junior College, Burlington, Iowa. M. L. ALTSTETTER, educational specialist of the Cooperative Study of Secondary School Standards. FRANCES SWINEFORD, research assistant in the Department of Education at the University of Chicago. KARL J. HOLZINGER, professor of education at the University of Chicago.

# PROBLEMS OF LIFE. II

O. I. FREDERICK AND LUCILE J. FARQUEAR
University of Mississippi

## INTRODUCTION

The first article[1] of this series of two articles presented the need for a dynamic core curriculum in secondary schools, proposed basing the core curriculum on the problems of life themselves, and stated the sources and the procedures used in locating and choosing problems of life suitable for the core curriculum of secondary schools.

The preceding article also described the general significance of three of nine carefully determined major areas of human activity, listed major problems of life under each of the three areas of human activity, and presented important smaller problems under each of the major problems of life. The other six major areas of human activity and the problems of life for each of them will be considered in a similar manner in this article. The nine major areas of human activity are: (1) protecting life and health, (2) making a home, (3) conserving and improving material conditions, (4) co-operating in social and civic action, (5) getting a living, (6) securing an education, (7) expressing religious impulses, (8) expressing aesthetic impulses, and (9) engaging in recreation.

## CO-OPERATING IN SOCIAL AND CIVIC ACTION

The community has for ages been organized for the purposes of protection and of orderly control, but today the problems of protection and orderly control have become more complex than ever before in the world's history. At the present time our country is facing a series of social and governmental problems which cannot be longer deferred or evaded. Some of these problems are local, and some are world wide. Since the control of government in a democracy depends on the people governed, the people, in order to

[1] O. I. Frederick and Lucile J. Farquear, "Problems of Life. I," *School Review*, XLVI (May, 1938), 337–45.

be able to solve these problems must understand governmental and social development through the past, must carefully analyze the present services and agencies of government and social co-operative efforts, and then make worthy decisions in the light of such knowledge and analysis. The school is responsible for making this knowledge available to boys and girls and for guiding them in the analysis of problems involved in co-operating in social and civic action. Impartial sources of information must be given them; widely divergent viewpoints must be compared and contrasted; and a complete picture of social and civic problems must be presented. Most of the problems of the twentieth century can be explained by the fact that social inventions and social thinking have lagged far behind mechanical inventions. One of our greatest aims, then, is to help youth in every possible way to speed up the rate of social invention.

### Major Problems

1. *Participating in nonpolitical community affairs.*—Living and working together in the community, making the community a more desirable place in which to live, and participating in the activities of the community's institutions and agencies for social welfare.

2. *Fulfilling one's rights and duties as a good citizen.*—Interpreting correctly the constitutional rights of a citizen and performing the various duties of a good citizen.

3. *Improving relations with minority race groups.*—Deciding on the best policy for relations with minority race groups within our country and raising the health standards and the economic status of these groups.

4. *Developing a definite population policy.*—Adjusting to present population trends, distributing population advantageously, and regulating immigration.

5. *Financing the government's operations.*—Adjusting to an increase in governmental costs and services and paying taxes for public facilities and services.

6. *Voting intelligently.*—Selecting a political party, securing competent officeholders, and voting intelligently on legislative measures.

7. *Providing and observing law enforcement.*—Increasing the respect of the people for law and the courts, securing free and equal civil and criminal justice to all people, and preventing or controlling crime and organized vice.

8. *Co-operating in political governmental functions.*—Enjoying the protective functions of the government while adjusting to the increasing growth of the government's regulative functions and maintaining a balance between centralization of governmental power and the rights and the powers of individual, community, and state.

9. *Establishing and improving international relations.*—Promoting and adopting a more intelligent patriotism and promoting world peace and friendship.

## GETTING A LIVING

The making of a living has always been and still is a dominant and necessary activity for man. Once a simple activity, it has grown to be very complex, involving the processes of production, the exchange and the consumption of goods, the distribution of profits, and a vast network of economic and occupational organization. Getting a living in our highly industrialized civilization is a serious and complicated matter and brings forth many problems. The unfortunate consequences of the use of machinery need to be remedied. Our entire economic system should be so well adjusted to machinery that stability and efficiency will result, and all men should be given the opportunity of making an adequate living. All these things can be accomplished only if the boys and girls now in the public schools can be helped to an understanding of these problems and the conditions that have brought them about and be guided in planning possible ways of improving these conditions in the future.

### Major Problems

1. *Producing and preparing goods.*—Securing raw materials through mining, lumbering, fishing, herding, and farming; making the most of the four factors in production—natural resources, labor, capital, and management.

2. *Exchanging goods.*—Securing goods from other communities, marketing goods, and buying and selling.

3. *Engaging in professions and service occupations.*

4. *Consuming goods intelligently.*—Supporting and making use of all agencies that guide and protect the consumer.

5. *Providing for a more nearly equal distribution of national income, wealth, and resources.*—Finding a way to increase the purchasing power of consumers.

6. *Providing for proper care and use of money and monetary values.*—Saving and investing savings, developing a technique of banking, borrowing money, and maintaining credit.

7. *Choosing a vocation.*—Deciding on, and preparing for, a suitable vocation and getting and holding a job.

8. *Improving the agricultural situation.*—Using national, state, and local organizations to bring about new trends in use of land; using science in farming; and raising the standards of living of rural people.

9. *Protecting and improving conditions of labor.*—Reducing poverty and economic insecurity, improving relations between employer and employee, and adapting to women's activity in industry.

10. *Determining the scope and the control of economic freedom.*—Curtailing individual property rights in consideration of public welfare and securing right relations between government and business.

11. *Maintaining balance in our economic system while adjusting to machinery.*—Balancing production and consumption, profits and wages, our wants and our ability to supply them, inventions of machines and inventions of new products, and credit needed by business and the volume supplied by banks.

12. *Making our economic organization more efficient and more secure.*—Reducing wastefulness in the use of materials and mechanical and human energy, distributing an abundant production equitably, improving and stabilizing our monetary system, and keeping the economic mechanism in steady and continuous operation.

## SECURING AN EDUCATION

Man has always been interested in passing on to the new generation the customs and the practices that he has learned. Today, however, the securing of an education is more than a problem of training the young, especially insofar as this training is centered in the school. People of all ages are being educated both through organized adult education and through such informal means as the press, the radio, the motion picture, and the library. Nevertheless, the school still plays a prominent role in the educative process and so stands at the center of the great surge of conflicting forces that constitute our rapidly changing world. The school cannot, if it would, remain aloof from the processes of conflict which are swiftly shaping the future and which have important educational implications. The school must be adjusted to social and economic trends if it is to accomplish its chief purpose, that of initiating young people into the major ways of life in a rapidly changing democratic civilization.

### Major Problems

1. *Making the most of one's educational opportunities.*—Deciding on the purpose of one's education, overcoming difficulties in order to get an education, supporting school activities, and appreciating improvements made in education.

2. *Extending educational opportunity to all.*—Improving and extending free and compulsory education and providing special schools or classes for illiterates, foreigners, and the physically, mentally, and emotionally handicapped.

3. *Providing adequate school facilities.*—Providing an adequate school plant, competent teachers, and adequate transportation.

4. *Financing education.*—Working out a system which would equalize the costs of education and protect the schools from the effects of economic depressions.

5. *Improving the administration of schools.*—Making more uniform state school laws; articulating the work of the various school levels; and deciding on the division of control among the federal government, the state, and the local community.

6. *Deciding on higher education.*—Determining whether to go to college, and, if so, on the institution and on preparatory courses.

7. *Continuing education after leaving school.*—Utilizing organized adult education, as well as continuing education informally through use of libraries, museums, travel, study courses, radio, and educational motion pictures.

8. *Integrating all educational agencies.*—Co-ordinating the educational activities of home, church, school, clubs, libraries, museums, theaters, radio, press, and various youth organizations.

9. *Changing the schools to meet the needs of a changing civilization.*—Relating the curriculum more closely to life, educating the whole child, using modern inventions effectively in the schools, providing educational guidance, etc.

10. *Preserving academic freedom.*—Providing and enjoying freedom to learn the truth and freeing the schools from exploitation by pressure groups.

### EXPRESSING RELIGIOUS IMPULSES

People have always engaged in religious practices and have always established moral standards of conduct. In recent years, however, religion has been applied to a wider range of life-activities, and moral standards have achieved a new social significance. Religion and morality are no longer to serve merely for the enrichment of the individual's life, they should also enrich community life. The belief that one set of principles can be used in private devotional life and an entirely different set of principles in social and industrial life is being superseded by a new single standard. This changing conception of religion calls for many readjustments, both of the church and of social living in general. The important problems growing out of such readjustments should form an integral part of the character-development program of the public schools.

#### MAJOR PROBLEMS

1. *Enjoying spiritual elements in seasonal holiday activities.*

2. *Choosing a personal religion.*—Formulating a religious viewpoint, enjoying religion as a means of emotional release, and using religion as a means of integrating and stabilizing personality.

3. *Applying religion to life.*—Applying religion to one's personal code of morals as well as to business and social situations in general.

4. *Participating in and promoting the activities of organized religion, the church.*—Participating in, financing, and improving both the worship activities and the socio-religious activities of the church.

5. *Enlarging the functions of the church.*—Adjusting the church to the religious and social needs of the time and locality by extending the church's program of activities.

6. *Promoting co-operation of various religious agencies.*—Co-ordinating the work of various denominations, as well as the work of the church and other religious or socio-religious organizations.

7. *Promoting religious tolerance.*

## EXPRESSING AESTHETIC IMPULSES

The aesthetic interest, the love of beauty, is apparently universal. Even primitive folk have had some ornamentation and some works of art. Our American civilization, in its overemphasis on the materialistic aspect of life, has stifled this impulse. Art has become too largely separated from everyday life and experience, and as a consequence our civilization is warped. The aesthetic must be given new emphasis if we are to have well-rounded men and women, and the school should take the lead in supplying such emphasis.

### Major Problems

1. *Relating art to everyday life and experience.*—Expressing beauty in clothes, general appearance, voice, manners, and conversation; re-uniting the fine arts and the practical arts; and beautifying the home, the school, and the community.

2. *Expressing, reproducing, or enjoying beauty through the fine arts.*—Creating, reproducing, and enjoying painting, drawing, sculpture, architecture, music, poetry, belles-lettres, drama, pageantry, and the graphic arts.

3. *Developing artistic hobbies.*—Making artistic collections, engaging in arts and crafts, engaging in amateur photography, and pursuing any of the fine arts as a hobby.

4. *Supporting and utilizing agencies for the development of art.*—Supporting and enjoying museums, art galleries, civic operas, municipal symphony orchestras, libraries, professional schools of art and music, scholarships, fellowships, the preservation of historic monuments, the radio, the motion pictures, and public-school art.

5. *Developing good taste.*—Evaluating modern trends in the fine arts and gaining standards for discriminating between the good and bad in architecture, sculpture, pictures, music, and literature.

6. *Giving to all people more opportunity for aesthetic expression and enjoyment.*—Decreasing differences in artistic opportunities between city and country, between regions, and between social groups.

7. *Designing new forms and types of art appropriate to new mechanical processes and new materials.*—Using new processes and new materials for art and developing entirely new art forms.

8. *Encouraging the contribution of the government to the fine arts.*—Comparing the attitude of the United States government toward the fine arts with the attitudes of other governments and appreciating the government's participation in aesthetic undertakings, such as city and regional planning, memorials, museums, public buildings, bridges, and parks.

9. *Developing international feeling through the fine arts.*—Increasing knowledge and appreciation of the fine arts of other countries and seeing, through art, the essential oneness of all people.

10. *Relating art to business.*—Utilizing arts and artists for purposes of commerce and industry and improving the aesthetic qualities of the architecture and the surroundings of business houses, office buildings, and manufacturing plants.

## ENGAGING IN RECREATION

There has probably never been a time when people did not have some leisure and when they did not attempt to amuse themselves during their leisure. However, no period in the world's history has afforded so wide an extension of leisure as does the present age. People are demanding play and recreation as never before, and many agencies have sprung up to meet these needs. In spite of these agencies, the American people are still quite unprepared for an adequate use of the large amount of leisure that they have suddenly acquired. The future will probably bring even more leisure than we have now, and the appropriate use of free time will become an increasingly serious problem. If properly used, this leisure can be a valuable asset to American civilization; if abused, it is certain to become a great liability. On the public schools, in large measure, rests the responsibility of determining whether the use of leisure shall become a great constructive force or a tragically destructive one. It is essential that the problems of recreation be given an important position in our social thinking and in our training of boys and girls.

### Major Problems

1. *Determining in what kinds of recreation to engage.*—Evaluating and engaging in various forms of recreation, relating recreation to one's whole life, and balancing active and passive forms of recreation.

2. *Supporting and co-ordinating the organizations concerned with the recreational needs of society.*—Encouraging and supporting the recreational activities of individuals, of various groups, and of the government.

3. *Adjusting to changing forms and needs of recreation.*—Adjusting to new and unaccustomed leisure, to new and increased need for play and relaxation, to new inventions and discoveries affecting recreation, and to change from inexpensive, informal forms of recreation to expensive, commercial forms of recreation.

4. *Making recreation more available to all people.*—Providing increased leisure, increased incomes, increased recreational facilities for all; reducing the cost of particular forms of recreation.

5. *Controlling and improving commercial amusements.*—Discouraging the exploitation of recreation for private gain and overcoming difficulties in the way of controlling commercial amusements.

## CONCLUDING STATEMENTS

The purpose of this series of two articles has been to indicate the sources, procedures, and criteria employed for analyzing, selecting, organizing, and stating significant problems of life suitable as the basis for a dynamic core curriculum for secondary schools.[1]

The consideration of some of the problems of life listed in these two articles will necessitate the use of knowledge primarily from one subject field, such as science or social science, and only to a small extent will need to involve other fields of knowledge. However, an adequate consideration of many of the other problems listed will draw heavily on knowledge from several subject fields.

The problems of life may be taught co-operatively by two or more teachers as an integrated core curriculum, or each of the problems of life may be allocated to the required subject field to which it seems to be most related. If the latter procedure is followed, it is highly important that the teacher broaden his horizon so that information from subject fields other than his own and from life itself can be brought to bear on the problem being taught. This teacher probably would desire to confer extensively with teachers in other subject fields concerning certain aspects of the unit of work. This broadened horizon would be highly desirable from the standpoint of both the teacher and the pupils because it would result in the consideration of the problem of life from all pertinent angles.

The practice of dealing in school with problems of life from many points of view should lead to more adequate consideration of problems of life by the same persons outside the school and during their entire lives. This enlarged outlook, in turn, should result in an improved physical and social environment; better living conditions; and more efficient, more wholesome, and more enjoyable living.

[1] A suggested grade placement of consideration of the problems of life will be published in a forthcoming issue of the *Journal of Educational Research*.

# THE EFFECT OF RECREATIONS IN THE TEACHING OF MATHEMATICS

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This article gives a report of three experiments carried out independently by three men in the secondary schools where they were working.[1] The purpose, in general, of each investigator was to answer the question whether spending one class period a week on mathematical recreations has an advantageous or a deleterious effect on achievement in mathematics. In two of the three researches an attempt was also made to find the effect of the recreations on the attitude of the pupil toward the subject. Charles C. Patton carried on an experiment in the field of plane geometry in the Clairton High School, Clairton, Pennsylvania; Alfred L. Henry, in the field of algebra in the West Franklin High School, Worthington, Pennsylvania; and Rutherford B. Porter, in algebra in the Meadville High School, Meadville, Pennsylvania.

The control-group technique was used in all cases. Patton matched thirty pairs of pupils on three criteria: the Otis Self-administering Tests of Mental Ability; the Lane-Greene Unit-Achievement Tests in Plane Geometry, Test II, Form A; and the First Year Algebra Scales by Hotz. He changed the scores on these tests to standard scores, summed the standard scores, and then matched the pupils according to the sums. Henry matched eighteen pairs of pupils on two criteria simultaneously. The criteria used were the Otis Self-administering Tests of Mental Ability and the county eighth-grade examination. Porter matched simultaneously twenty-five pairs of pupils on the following criteria: Otis Self-administering Tests of Mental Ability, the Lee Test of Algebraic Ability, and the sum of Parts 3 and 4 of the tests on arithmetic fundamentals and arithmetic problems of the Metropolitan Achievement Tests.

[1] It is the aim of the research division of the education department of the Pennsylvania State College to make available the results of researches on the same hypotheses when these results indicate consistency.

In each of the experiments the control group was taught in the traditional way. The experimental class was given recreations of a mathematical nature for one-fifth of the time, usually for one complete class period a week.

The recreations were of such a type that the pupils could have fun, while perhaps learning some mathematics. The problems found in the books, *Mathematical Wrinkles*[1] and *Mathematical Nuts*[2] by Jones and *Mathematical Recreations and Essays*[3] by Ball, are illustrative of those used. Although no attempt was made by the experimenters to agree on the recreations to be used, it was found that they did agree closely. Probably, then, the recreations could be considered representative of the field. All three men used recreations of the contest type, from the spelling bee to the solution of regular textbook problems on the board. All used puzzle problems, such as: "Take a number smaller than 20, multiply it by 2, add 15, add the original number, subtract 6, divide by 3, subtract the original number, and add 2. The result must be 5." Magic squares and, in geometry, the trisection of an angle were popular. Pupils were encouraged to bring problems to class, and these were made a part of this class exercise.

All results were in favor of the groups which had had the recreations but in different degrees.

The mean scores in Patton's and Henry's experiments and data on their significance are given in Table 1. In geometry, tests were given at the end of each unit, Hart's Geometry Tests and the Lane-Greene Unit-Achievement Tests being used. The Columbia Research Bureau Plane Geometry Test was given at the close of the course. The ratio of the difference of the means to the standard error of the difference in the means is shown in the last column. The odds by which the experimental group surpassed the control group on the geometry tests are all in favor of the pupils who had had mathematical recreations, but in varying degrees. The reader

[1] Samuel I. Jones, *Mathematical Wrinkles*. Nashville, Tennessee: Samuel I. Jones (Life and Casualty Building), 1923 (revised).

[2] Samuel I. Jones, *Mathematical Nuts*. Nashville, Tennessee: Samuel I. Jones (Life and Casualty Building), 1932.

[3] W. W. Rouse Ball, *Mathematical Recreations and Essays*. London: Macmillan & Co., Ltd., 1922 (tenth edition).

should note that, in general, as the experiment proceeded through the year, the odds in favor of the experimental group became greater.

Henry tested at the end of each unit of work, using the tests in the textbook by Hart.[1] These results are also shown in Table 1. Test 8 is the sum of the unit tests, and Test 9 (Columbia Research Bureau Algebra Test) was given at the close of the course. It is of interest to note that the odds of true superiority of the experimental group were about the same when the unit tests were

TABLE 1

SCORES ON MATHEMATICS TESTS SECURED BY EXPERIMENTAL GROUPS GIVEN RECREATIONS IN MATHEMATICS AND BY CONTROL GROUPS TAUGHT IN TRADITIONAL WAY

| Test | Mean Score | | Difference in Means in Favor of Experimental Group | Standard Error of Difference | Diff. / $\sigma_{diff.}$ | Number of Chances to 1 That Difference Is True Difference |
|---|---|---|---|---|---|---|
| | Experimental Group | Control Group | | | | |
| Plane geometry (Patton's experiment): | | | | | | |
| 1 (Hart's test) | 23.70 | 23.33 | 0.37 | 0.69 | 0.54 | 2 |
| 2 (Lane-Greene test) | 21.46 | 19.00 | 2.46 | 1.16 | 2.12 | 58 |
| 3 (Hart's test) | 27.30 | 25.05 | 2.25 | 1.06 | 2.12 | 58 |
| 4 (Lane-Greene test) | 20.06 | 17.13 | 2.93 | 1.09 | 2.69 | 277 |
| 5 (Hart's test) | 12.70 | 11.23 | 1.47 | 0.65 | 2.26 | 83 |
| 6 (Lane-Greene test) | 16.93 | 13.43 | 3.50 | 0.94 | 3.72 | 9,999 |
| 7 (Lane-Greene test) | 20.66 | 17.40 | 3.26 | 1.15 | 2.83 | 434 |
| 8 (Hart's test) | 12.93 | 12.00 | 0.93 | 0.85 | 1.09 | 6 |
| 9 (Columbia Research Bureau test) | 32.70 | 24.50 | 8.20 | 2.33 | 3.52 | 4,999 |
| Algebra (Henry's experiment): | | | | | | |
| 1 (Hart's test) | 42.88 | 43.61 | −0.73 | 1.51 | 0.48 | 2 |
| 2 (Hart's test) | 42.16 | 41.83 | 0.33 | 1.35 | 0.24 | 1 |
| 3 (Hart's test) | 43.16 | 41.83 | 1.33 | 1.32 | 1.01 | 5 |
| 4 (Hart's test) | 40.50 | 38.83 | 1.67 | 1.63 | 1.02 | 5 |
| 5 (Hart's test) | 41.33 | 39.33 | 2.00 | 1.45 | 1.38 | 11 |
| 6 (Hart's test) | 35.72 | 31.66 | 4.06 | 2.18 | 1.86 | 31 |
| 7 (Hart's test) | 78.60 | 68.80 | 9.80 | 4.02 | 2.44 | 136 |
| 8 (Sum of Tests 1–7) | 324.39 | 305.94 | 18.45 | 8.50 | 2.17 | 66 |
| 9 (Columbia Research Bureau test) | 43.44 | 39.72 | 3.72 | 1.72 | 2.16 | 64 |

[1] Walter W. Hart, *Progressive First Algebra*. Boston: D. C. Heath & Co., 1934.

summed as when the Columbia Research Bureau Algebra Test was used. Here too, the odds in favor of the experimental group increased as the experiment progressed.

Porter used the Columbia Research Bureau Algebra Test at the beginning of his study and again at the end. He found the gains

TABLE 2

RESULTS ON SCALE OF ATTITUDE TOWARD SUBJECT GIVEN AT BEGINNING AND END OF TWO EXPERIMENTS IN ALGEBRA, EXPERIMENTAL GROUPS BEING GIVEN RECREATIONS AND CONTROL GROUPS TAUGHT IN TRADITIONAL WAY

| Item | Henry's Experiment | Porter's Experiment |
|---|---|---|
| Mean score on initial test: | | |
| Experimental group | 7.46 | 8.38 |
| Control group | 7.57 | 8.46 |
| Mean score on final test: | | |
| Experimental group | 8.22 | 8.35 |
| Control group | 7.19 | 8.17 |
| Mean gain: | | |
| Experimental group | 0.76 | −0.03 |
| Control group | −0.38 | −0.29 |
| Difference between mean gains of two groups | 1.14 | 0.26 |
| Standard error of difference | 0.42 | 0.21 |
| Ratio of difference to standard error of difference | 2.71 | 1.24 |
| Number of chances to 1 that difference is a true difference | 293 | 8 |

for each group and compared these by a method similar to that used by Patton to compare scores in geometry. The mean initial score of Porter's control group was 11.56 and the mean final score was 29.88, a gain of 18.32. For the experimental group the mean initial score was 10.64 and the mean final score was 26.88, a gain of 16.24. The mean of the difference in gains was 2.08, and the standard error of this difference was 1.61. The ratio of the difference in gains

to the standard error of the difference was 1.29, with odds of 9 to 1 in favor of the pupils who had had recreations.

Henry and Porter both used Silance and Remmer's Scale for Measuring Attitude toward Any School Subject to measure the attitude toward algebra. This scale was given at the beginning of the studies and again in the end. These means were subtracted to find the difference in gains of the two groups, as is shown in Table 2. There is a large difference in the odds of the true superiority of the experimental group, but the fact that both the differences are in favor of the same group indicates that the attitude of this group was improved by the recreations.

### SUMMARY OF RESULTS FROM THREE STUDIES

Only in one test, the first in Henry's battery, did the control group exceed the experimental group, and that by very small odds. This finding indicates that in the beginning the two groups were much alike in achievement, as Henry had planned to make them by matching. However, as the study progressed and the experimental group had more recreations, the odds in their favor in achievement became larger and larger. This steady increase was also characteristic of Patton's findings. The fact that Porter's experimental group also exceeded his control group adds strength to the conclusion that use of mathematical recreations in class work is advantageous for achievement.

Similar results were found in the attitude of the pupils toward the subject. Consequently there appears to be some kind of relation between achievement in mathematics and attitude of the pupils toward it. In any case both achievement and attitude were improved by the use of recreations. These studies show that pupils not only may have fun of the mathematical-recreation type in mathematics classes without a deleterious effect on their achievement but may actually achieve more in the process. The fact that substantially all differences lie in this direction establishes this conclusion with very high reliability.

# LEGISLATION ON THE JUNIOR HIGH SCHOOL

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## INTRODUCTION

In recent years there has been a general feeling that legislation has materially affected the reorganization of secondary schools. In some states the leaders in education have expressly stated that the junior high school cannot have legal existence unless it is recognized by statute. In 1920 Briggs gave as one of the objections to the junior high school the fact that "state laws make the establishment of junior high schools difficult if not impossible."[1] Koos once said, "Nor do state laws and other methods of state regulation appear to afford a source of constructive criteria from which might be set up a norm of desirable practice."[2] Many similar opinions pertaining to the new school can be found.

The questions often asked about the junior high school organization are: What type of legislation, if any, will promote the best development of the junior high school? What type of legislation will hinder such a development? Terry and Marquis made a study in 1924 that cast some light on these questions. They found eighteen states with junior high school legislation.[3] Since that time sixteen new states have adopted such laws, and others have made many changes and additions. The writer, believing, with others, that a more complete and up-to-date investigation would be of value, was prompted to make the present study.

After a complete search in the statutes and the session laws of the forty-eight states, the laws having to do with junior high schools were classified and interpreted. The provisions to be found in the states with laws are summarized in Table 1. Digests of cases were

[1] Thomas H. Briggs, *The Junior High School*, p. 74. Boston: Houghton Mifflin Co., 1920.

[2] Leonard V. Koos, *The Junior High School*, p. 485. Boston: Ginn & Co., 1927.

[3] Paul W. Terry and William J. Marquis, *Legislation on the Junior High School*, p. 8. United States Bureau of Education Bulletin No. 29, 1924.

## TABLE 1

### CLASSIFICATION OF JUNIOR HIGH SCHOOL LEGISLATION

| State | Definition and Grades Included | Junior-Senior High School Provisions | Requirements for Admission | Curriculum | Permission To Organize and Establish | Incidentally Recognized | Popular Vote Required | Powers Granted to Central Authority | Teachers' Certificates and Salaries | Procedure and Condition of Establishment | Minimum-Enrolment Requirements | Provisions for Termination | Standardization by Central Authority | Textbook Commission Established | Basis of Distribution of Funds | Extension of Educational Opportunity | State Aid | Transportation | Cost Taken from High-School Funds |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alabama | x | x | x | ... | x | ... | ... | x | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Arizona | x | ... | ... | ... | x | ... | ... | x | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Arkansas | ... | ... | ... | ... | ... | x | ... | x | ... | ... | ... | ... | ... | x | ... | ... | ... | ... | ... |
| California | x | x | x | x | x | ... | x | x | x | x | x | x | ... | ... | x | x | x | ... | ... |
| Connecticut | ... | ... | ... | ... | x | ... | ... | x | ... | ... | ... | ... | ... | ... | ... | ... | ... | x | ... |
| Florida | x | x | ... | ... | x | ... | ... | x | ... | ... | ... | ... | ... | ... | x | ... | x | ... | ... |
| Georgia | ... | ... | ... | ... | x | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Indiana | x | ... | x | x | x | ... | ... | x | x | ... | ... | ... | ... | x | ... | x | ... | ... | ... |
| Kansas | x | ... | ... | ... | x | ... | ... | x | x | ... | ... | ... | ... | x | ... | ... | ... | ... | ... |
| Maine | x | ... | ... | ... | x | ... | ... | x | ... | x | ... | ... | ... | ... | x | x | x | ... | x |
| Maryland | x | ... | ... | ... | x | ... | ... | x | x | ... | ... | ... | ... | ... | x | ... | x | ... | ... |
| Massachusetts | ... | ... | ... | ... | ... | x | ... | x | ... | ... | ... | ... | ... | ... | ... | x | x | x | ... |
| Michigan | x | x | ... | ... | x | ... | ... | ... | ... | x | ... | ... | ... | ... | x | ... | x | ... | ... |
| Minnesota | x | x | ... | ... | x | ... | ... | ... | x | x | ... | ... | ... | ... | x | ... | x | ... | ... |
| Mississippi | x | x | ... | ... | x | ... | ... | x | ... | x | ... | ... | ... | x | ... | ... | ... | ... | ... |
| Montana | x | ... | x | x | x | ... | x | x | x | x | ... | x | x | x | x | x | x | ... | ... |
| Nevada | x | ... | ... | ... | x | ... | ... | x | x | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| New Hampshire | x | ... | ... | ... | x | ... | ... | x | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| New Jersey | x | x | ... | ... | x | ... | ... | x | ... | x | x | ... | ... | ... | x | ... | x | ... | ... |
| New Mexico | x | ... | ... | ... | x | ... | ... | x | ... | ... | ... | ... | ... | x | x | ... | ... | ... | ... |
| New York | ... | ... | ... | ... | ... | x | ... | ... | x | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| North Carolina | x | x | ... | ... | x | ... | ... | ... | ... | ... | ... | ... | ... | x | ... | ... | ... | ... | ... |
| North Dakota | x | x | ... | ... | x | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Ohio | x | x | ... | ... | x | ... | ... | x | ... | x | ... | ... | x | ... | ... | x | ... | x | ... |
| Oklahoma | ... | ... | ... | ... | ... | x | ... | x | ... | ... | ... | ... | ... | x | ... | ... | ... | ... | ... |
| Pennsylvania | x | x | ... | ... | x | ... | ... | x | x | x | ... | ... | x | ... | ... | x | ... | ... | ... |
| Rhode Island | ... | ... | ... | ... | ... | x | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Tennessee | x | x | x | x | x | ... | ... | x | x | x | x | ... | x | ... | x | x | x | ... | x |
| Texas | x | ... | ... | ... | ... | x | ... | x | ... | ... | ... | ... | ... | x | ... | ... | ... | ... | ... |
| Vermont | x | x | x | x | x | ... | ... | x | ... | ... | x | ... | ... | ... | x | x | x | x | ... |
| Virginia | x | ... | ... | ... | ... | x | ... | x | ... | ... | ... | ... | ... | ... | x | ... | x | ... | x |
| Washington | ... | ... | ... | x | ... | x | ... | x | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| West Virginia | x | x | ... | ... | x | ... | ... | x | x | x | ... | ... | x | ... | x | ... | x | ... | ... |
| Wisconsin | x | x | ... | x | x | ... | ... | x | ... | x | x | ... | ... | ... | x | ... | x | ... | x |

searched for court decisions on the junior high school program. Since few cases were found, no classification of them was made. They will be mentioned as the occasion arises.

### THE NATURE OF THE ORGANIZATION

*Grades included.*—What is the nature of the junior high school organization according to the state laws? There is a disagreement on terminology. "Intermediate school" and "junior high school" are the terms most frequently employed, the latter being used in nearly all states. A wider diversity appears in the grades to be included in the junior high school. Twenty-one states chose to include Grades VII, VIII, and IX; other states include Grades VII and VIII; Florida provides for Grades IX and X as junior high school grades; and other miscellaneous provisions include some combination of these three groupings. It is interesting to note that six states include Grade X in the junior high school. The legislatures of seven states specifically place the junior high school on the secondary level, but the remaining states leave this issue unsolved in the statutes except in a few states which found it necessary to divide the junior high school into elementary and secondary units for the purpose of state-aid distribution.

*Definition.*—In all, twenty-six states have seen fit to legislate on the definition of the junior high school. Some of this legislation specifically defines the junior high school; some of it delegates this power and duty to the state board of education; and several states have placed an alternative provision in their laws. Beyond the point of designating the grades to be included in the junior high school, few states have made attempts further to define the school. A few specify the subjects that may be taught in the school and the conditions under which a pupil may be admitted.

*Junior-senior high school provisions.*—In fifteen states definite reference is made to the junior-senior high school. Alabama, California, Florida, Minnesota, Mississippi, Ohio, Tennessee, West Virginia, and Wisconsin have provided for the new senior high school of the last three grades—Grades X, XI, and XII—as an organization separate and distinct from the regular four-year high school. The tendency seems to be to define the junior-senior high school as comprising Grades VII–XII, inclusive.

*Requirements for admission.*—Six states have legislated on the conditions that a pupil must fulfil before he is qualified to enter the junior high school. The laws of California, Indiana, Tennessee, and Vermont provide that pupils who have completed the work of Grade VI shall be admitted to the junior high school.

*The curriculum.*—Regulating the course of study has been left entirely to the state board of education in Indiana, Kansas, Nevada, New Mexico, Tennessee, Washington, and West Virginia. The state superintendent is given this power in Maine and Montana, and the textbook commission in Mississippi. In California the power to prepare the course of study is granted to the high-school board, subject to the approval of the state board of education. Vermont and Wisconsin have placed certain safeguards in their laws.

### ORGANIZATION AND ADMINISTRATION

*The need for legislation.*—Legalization of the school does not appear to be a necessity except in a few states where graduation from the elementary school or the passing of an eighth-grade examination is a prerequisite to admission to the high school.[1] This condition is evident when a comparison is made between Table 1 and the statistics presented in a table showing the percentage of reorganized schools and pupils in reorganized schools in the United States for the year 1929–30.[2] All states have reorganized schools, although, on the whole, these schools have increased more rapidly in the states with the oldest and the most complete statutes. At the bottom of the list is Louisiana; only 1 per cent of its schools are of the reorganized type. One authority says that, since junior high schools are not mentioned in the laws of that state, the implication is that such schools are unauthorized.[3] On the other hand, Utah, Colorado, Iowa, and Delaware—states without laws—are at, or near, the top of the list in the percentage of reorganized schools.

The tremendous increase of the junior high school enrolment and

[1] Paul W. Terry and William J. Marquis, *op. cit.*, pp. 23, 30.

[2] Francis T. Spaulding, O. I. Frederick, and Leonard V. Koos, *The Reorganization of Secondary Education*, p. 35. National Survey of Secondary Education Monograph No. 5. United States Office of Education Bulletin No. 17, 1932.

[3] Ward W. Keesecker, assisted by Franklin C. Sewell, *Legal and Regulatory Provisions Affecting Secondary Education*, p. 35. National Survey of Secondary Education Monograph No. 9. United States Office of Education Bulletin No. 17, 1932.

the difference between this increase and that of the regular high school[1] is evidence that the junior high school movement did not wait for legislative enactment. Legislation seems to have followed the movement instead of leading it. In most cases the legislation merely stimulated the growth of the school.

*Permission to organize.*—The question no longer was whether a district could provide instruction on the secondary level at the public expense (for that point had been decided in the pioneer Kalamazoo case) but whether school boards had the power to organize certain grades as a separate unit.

The states in which codes specifically cover this matter can proceed without hesitation. The situation in the other states is, at best, problematic. There is no doubt that, if a state legislature specifies the grades to be included in the junior high school, it also recognizes such an institution. Nor does there appear to be any difficulty in Arkansas, Massachusetts, New York, Oklahoma, Rhode Island, Texas, Virginia, and Washington, where the reorganization movements are apparently legalized only incidentally. Curiously enough, Oklahoma has based its authority to establish the junior high school on a provision giving a textbook commission power to adopt textbooks. The superintendent of public instruction of the state of Oklahoma reported in 1930 that "the present program for the approval of junior high schools in Oklahoma has its basis in Section 342, School Laws of Oklahoma, 1929. . . . ."[2] In the state of New York, where the Board of Regents is given the power to organize the school system, a decision of the State Supreme Court[3] leaves no doubt of the authority to establish a junior high school without legislative sanction.

Keesecker and Sewell expressed the general assumption in states without legislation. They said: "Apparently the decision in the famous Kalamazoo case and subsequent decisions in agreement with it have been regarded as sufficient legal authority to enable school

[1] *Biennial Survey of Education, 1928–1930*, II, 90. United States Office of Education Bulletin No. 20, 1931.

[2] *Thirteenth Biennial Report of the Superintendent of Public Instruction of the State of Oklahoma, July 1, 1928, to June 30, 1930*, p. 62. Oklahoma City, Oklahoma: State Board of Education, 1930.

[3] *Brady* v. *Board of Education*, 239 N.Y.S. 642, 136 Misc. Rep. 1.

districts in general to establish junior high schools."[1] Washington, before 1933, when the present law was passed, was told by its attorney general that the junior high school was not a legal school. Yet, in spite of the attorney general's opinion, the schools existed. Although Texas never has had a general law pertaining to the reorganization of its schools, the junior high school has been a well-established institution in that state. The only provisions that can be found for that state are the sections on the organization of the county unit system and the section on the adoption of textbooks in all junior high schools. The Supreme Court of Texas[2] has held that, in the absence of an appeal to the state board of education, parents are not entitled to enjoin trustees from reorganizing schools as junior high schools. The court indicated that the state board of education was vested with sufficient powers to approve such an organization and that its decision was final if its rules and regulations were not unreasonable. On the basis of such a decision it may be concluded that the junior high school can be organized on the general authority granted to boards to organize schools, unless there is some provision in the law which definitely precludes reorganization. This case, however, though a leading one and one that would tend to influence subsequent courts of other states, is authority only in Texas. What other state supreme courts would say about a similar situation cannot be predicted. The only solution, therefore, is legislation.

None of the laws indicate that the junior high school organization is mandatory on any district. As a matter of fact, the laws have gone so far as to give the voters opportunity to say whether there shall be a junior high school in the district. California and Montana are pioneers in this respect. In California the alternative nature of one section[3] does not make it mandatory that a popular vote be taken prior to the establishment of a junior high school. Another section[4] apparently makes such a vote mandatory on a district. These laws affect only certain districts, and their influence, therefore, is limited.

[1] Ward W. Keesecker, assisted by Franklin C. Sewell, *op. cit.*, p. 30.

[2] *Boystun et al.* v. *Fort Worth Independent School District et al.*, 33 S.W. (2d) 811.

[3] California. *General Laws, 1931*, Deering, Vol. III, Act 7519, Div. III, Part III, chap. ii, art. i, sec. 3.231.

[4] California. *Statutes and Amendments to the Code, 1935*, chap. 237, sec. 3.232.

In Montana in districts that do not have accredited high schools, final submission to popular vote is an essential requirement to the establishment of a junior high school.

*Trends in legislation.*—The new legislation is becoming more detailed. Terry and Marquis' observation that the standards in the laws are advisory rather than mandatory seems to be less true today.[1] For, upon close examination it is apparent that, although a district is not compelled to organize junior high schools, in most cases it must follow the standards set up if it chooses to adopt the organization. The wording of many of the recent laws allows no other interpretation. Recent legislation points to more numerous and more rigid standards and away from the fewer less mandatory provisions.

*Procedure of establishment.*—The laws of only two states specifically outline the procedure of establishment. The remaining states merely provide a few minor conditions under which establishment may take place. The laws in many states give the state boards of education power of supervision and control over the junior high school through general provisions contained in the high-school sections of the law. Just as the permission to organize junior high schools is taken for granted, so is this particular power also inferred. Yet, as indicated in Table 1, of all the states having some provision in regard to the establishment of a junior high school, only seven have failed to say something about approval by the state board of education, or some central authority, for the reorganization of the schools. In the states having such a clause, usually the reference is to the organization or establishment or to the course of study. In some cases the authority conferred by the law is merely the power of approval or disapproval. In other cases the state board of education is given powers to specify the rules and the regulations in the control of the schools.

*Teachers' certificates.*—California, Kansas, Minnesota, Montana, Nevada, Tennessee, and West Virginia specifically grant some central authority power to regulate the issuance of certificates for junior high school teachers. In addition, California, Minnesota, Montana, and Nevada have seen fit to place in their laws provisions naming the

[1] Paul W. Terry and William J. Marquis, *op. cit.*, p. 14.

junior high school certificate and specifying in what grades it shall be valid. The laws of Indiana, Maryland, Minnesota, and Montana set out rather definitely the conditions that must be met to qualify as a junior high school teacher. Other laws are very general in nature.

*Minimum-enrolment requirements.*—As one of the conditions of establishment, several states make a requirement of a certain minimum enrolment. The law of California provides that the school shall automatically lapse when the enrolment falls below the minimum. The Tennessee law specifically provides against such automatic termination.

*Standardization.*—Much of the law on standardization in the various states covers the following items: the definition of the junior high school, the statement of the conditions under which establishment may be made, the grades to be included in the junior high school, specific requirements as to the course of study, teachers' certificates, and minimum-enrolment requirements. A few states specify the minimum number of teachers that shall be employed in the various types of schools. In five states the central authority has the power of classification or standardization or both. It is evident that, with the exception of the general points of standardization, the states have assumed that this power has been granted to the state board or executive officer in the general grant of powers pertaining to the high schools as a whole.

*Textbook commission established.*—A special book commission is established in five states. Four other states give this power to some central authority. Arkansas places the duty of adopting textbooks on the commission but specificially limits the adoption of books to the elementary grades and adds that junior high school books are not to be included in this provision.

### FINANCIAL PROVISIONS

*Extension of educational opportunity.*—To make it possible for pupils to enjoy the privileges offered in the junior high schools, many states have incorporated in their laws provisions allowing pupils to attend such junior high schools even though it is necessary for them to go outside their districts to do so. In general, the law

requires a district to furnish the junior high school course or to pay another district a tuition charge for providing such education. In a few instances the law throws the burden of expense on the state or the county, and the district furnishing such education to nonresident pupils is prohibited from making a tuition charge.

*State aid.*—State aid for junior high schools has been considered important enough for fourteen states to make special provision in regard to it. California, Michigan, Montana, and Tennessee have placed the junior high school and the senior high school on the same footing with regard to state aid. Ten states have apportioned different amounts or proportions to the two types of schools. A few of the laws merely state in a general way that junior high schools, when organized according to law, shall share in state aid. A number of states have more detailed provisions, especially pertaining to the basis of distribution of funds. Generally speaking, approval by the state board of education or by a central executive is a condition that must be met before a junior high school can share in the distribution of state funds.

*Transportation.*—Only four states have laws on the transportation of junior high school pupils. Obviously the other states are satisfied that transportation laws pertaining to elementary- and high-school pupils are sufficient for junior high school purposes. Such a stand is expressly taken in the Ohio General Code.[1]

*Source of funds.*—A few states have provided that the cost of maintaining the junior high schools be taken from high-school funds. The junior high schools seem to gain no particular advantage from such a clause. In any case, the funds set aside for Grades VII and VIII of the junior high schools are taken out of the elementary-school funds, while those provided for Grade IX are taken out of the high-school funds. Michigan, Montana, and Tennessee have the solution for the problem; the laws of these states with reference to the making of appropriations definitely place the junior high schools on a par with the high schools.

[1] Ohio. *General Code, 1936*, sec. 7748–1.

# THE EFFECT ON ACHIEVEMENT OF A SCHOLARSHIP REQUIREMENT

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## INSTITUTING A SCHOLARSHIP REQUIREMENT

A comparative study of the school reports issued for the periods of 1921–27, 1928–30, and 1930–34 reveals a variety of gradual and progressive modifications in the public secondary schools of Kansas City, Missouri. One of these changes, namely, the increased requirements for graduation, has been of particular significance.

Prior to the graduation of the class of June, 1932, thirty solid credits (fifteen units) was the maximum required for graduation from high school. The term "solid" as used in Kansas City, Missouri, refers to high-school subjects which require outside preparation, such as English, mathematics, and history. One semester's work in a solid subject counts as one "solid" credit. Subjects which require little or no outside preparation are designated as "nonsolids," for example, art, music, typewriting, and R.O.T.C. Nonsolids count for one-half as much credit as solids. Beginning with the class of June, 1932, the requirement for graduation was increased to thirty-two solid credits (sixteen units). In the autumn of 1931 an additional requirement of a minimum of fifty-six scholarship points, based on marks, was introduced. The scholarship points are determined on the basis of marks earned in solid subjects as follows: E (excellent), four points; S (superior), three points; M (medium), two points; I (inferior), one point; and F (failure), no points. Marks earned in nonsolid subjects receive one-half the number of scholarship points allowed for solid subjects.

## PURPOSE OF THE STUDY

The purpose of this investigation was to determine the effect on achievement, as measured by marks of high-school pupils, resulting from the introduction of the graduation requirement of thirty-two

credits and fifty-six scholarship points. The achievements of pupils graduated under the increased requirements were compared with the achievements of pupils graduated under the former thirty-credit plan. For the purpose of ascertaining whether the values of the marks used as a measure of achievement were the same under both systems, a comparison was made of the percentage distributions of marks. Attention was given to such important factors as increased enrolment, increased teacher load, reorganized courses of study, improved faculty, increased counseling activity, and differences in the attainment of college-preparatory and non-college-preparatory pupils. In addition, an auxiliary analysis was made of the character of the pupils who required four and a half years or more to be graduated under the two systems.

## SOURCES OF DATA

The detailed analysis of this study was based on the school records of a sample population of 1,200 graduates (400 pupils from each of the Central, Westport, and Southwest High Schools). These cases were selected from 3,206 graduates of the classes of 1930 and 1931 (representing the pupils graduated under the former system of requirements) and of the classes of 1934 and 1935 (representing the present system). The auxiliary study of pupils requiring four and a half years or more for graduation was based on the records of 403 pupils representing the same four classes. Data associated with the various concurrent factors considered were obtained from local school records, reports, publications, and interviews.

## RESULTS OF INVESTIGATION

*Nature and relation of contributory factors.*—The analysis of concurrent factors given in Table 1 reveals that the nature of the student body was essentially the same under both systems of requirements for graduation, a common basis for comparison being thus provided. The values of the marks were practically the same under both systems, as determined by a comparison of the percentage distributions. While both the Freshman enrolments and the total enrolments varied and there were some small increases in teacher load under the present system, the exact relation and effect of these differences cannot be readily determined. It is possible, however, that

TABLE 1

COMPARISON OF 1,200 PUPILS GRADUATED FROM THREE HIGH SCHOOLS UNDER FORMER AND PRESENT REQUIREMENTS

| Sex of Graduates and Requirements of Graduation | Percentage of Sample in Course | | Mean Percentile on Terman Group Test of Mental Ability | Mean Age (in Years) at Entrance to High School | Mean Elementary-School Rating |
|---|---|---|---|---|---|
| | College-preparatory | Non-college-preparatory | | | |
| | Central High School | | | | |
| Boys: | | | | | |
| Former requirements... | 61 | 39 | 60.23 | 13.57 | 2.23 |
| Present requirements... | 63 | 37 | 63.76 | 13.42 | 2.31 |
| Girls: | | | | | |
| Former requirements... | 41 | 59 | 55.54 | 13.54 | 2.38 |
| Present requirements... | 43 | 57 | 53.74 | 13.42 | 2.39 |
| Both: | | | | | |
| Former requirements... | 49 | 51 | 57.30 | 13.55 | 2.32 |
| Present requirements... | 53 | 47 | 58.20 | 13.42 | 2.35 |
| | Westport High School | | | | |
| Boys: | | | | | |
| Former requirements... | 69 | 31 | 68.48 | 13.73 | 2.29 |
| Present requirements... | 76 | 24 | 69.94 | 13.47 | 2.50 |
| Girls: | | | | | |
| Former requirements... | 55 | 45 | 63.70 | 13.57 | 2.44 |
| Present requirements... | 54 | 46 | 62.30 | 13.41 | 2.52 |
| Both: | | | | | |
| Former requirements... | 61 | 39 | 64.30 | 13.65 | 2.37 |
| Present requirements... | 64 | 36 | 65.70 | 13.44 | 2.51 |
| | Southwest High School | | | | |
| Boys: | | | | | |
| Former requirements... | 83 | 17 | 75.23 | 13.49 | 2.46 |
| Present requirements... | 94 | 6 | 72.00 | 13.52 | 2.43 |
| Girls: | | | | | |
| Former requirements... | 79 | 21 | 61.00 | 13.32 | 2.49 |
| Present requirements... | 84 | 16 | 65.20 | 13.40 | 2.55 |
| Both: | | | | | |
| Former requirements... | 80 | 20 | 67.05 | 13.39 | 2.48 |
| Present requirements... | 89 | 11 | 68.60 | 13.46 | 2.49 |

TABLE 2

SCHOLARSHIP-POINT AVERAGES OF 1,200 PUPILS GRADUATED FROM THREE HIGH SCHOOLS UNDER FORMER AND PRESENT REQUIREMENTS

| SEX OF GRADUATES AND REQUIREMENTS OF GRADUATION | MEAN OF SCHOLARSHIP-POINT AVERAGES EARNED BY ALL GRADUATES | | | | | MEAN OF SCHOLARSHIP-POINT AVERAGES IN SOLID SUBJECTS | MEAN OF SCHOLARSHIP-POINT AVERAGES IN NON-SOLID SUBJECTS |
|---|---|---|---|---|---|---|---|
| | All Four Years | Freshman Year | Sophomore Year | Junior Year | Senior Year | | |
| | Central High School | | | | | | |
| Boys: | | | | | | | |
| Former requirements | 2.21 | 2.29 | 2.01 | 2.23 | 2.33 | 2.07 | 2.90 |
| Present requirements | 2.31 | 2.22 | 2.10 | 2.26 | 2.47 | 2.20 | 2.77 |
| Girls: | | | | | | | |
| Former requirements | 2.31 | 2.51 | 2.19 | 2.30 | 2.41 | 2.28 | 2.51 |
| Present requirements | 2.31 | 2.39 | 2.16 | 2.32 | 2.40 | 2.29 | 2.50 |
| Both: | | | | | | | |
| Former requirements | 2.27 | 2.41 | 2.11 | 2.27 | 2.37 | 2.19 | 2.68 |
| Present requirements | 2.31 | 2.31 | 2.13 | 2.29 | 2.43 | 2.25 | 2.62 |
| | Westport High School | | | | | | |
| Boys: | | | | | | | |
| Former requirements | 2.24 | 2.44 | 2.13 | 2.15 | 2.37 | 2.17 | 2.72 |
| Present requirements | 2.36 | 2.26 | 2.12 | 2.36 | 2.50 | 2.29 | 2.74 |
| Girls: | | | | | | | |
| Former requirements | 2.44 | 2.68 | 2.35 | 2.37 | 2.50 | 2.39 | 2.69 |
| Present requirements | 2.40 | 2.44 | 2.25 | 2.32 | 2.51 | 2.34 | 2.54 |
| Both: | | | | | | | |
| Former requirements | 2.34 | 2.56 | 2.24 | 2.26 | 2.44 | 2.29 | 2.70 |
| Present requirements | 2.39 | 2.36 | 2.19 | 2.34 | 2.51 | 2.32 | 2.63 |
| | Southwest High School | | | | | | |
| Boys: | | | | | | | |
| Former requirements | 2.32 | 2.34 | 2.19 | 2.26 | 2.35 | 2.26 | 2.72 |
| Present requirements | 2.25 | 2.28 | 2.13 | 2.19 | 2.34 | 2.24 | 2.75 |
| Girls: | | | | | | | |
| Former requirements | 2.31 | 2.35 | 2.21 | 2.28 | 2.27 | 2.25 | 2.72 |
| Present requirements | 2.34 | 2.48 | 2.17 | 2.30 | 2.42 | 2.33 | 2.62 |
| Both: | | | | | | | |
| Former requirements | 2.31 | 2.35 | 2.20 | 2.27 | 2.31 | 2.26 | 2.72 |
| Present requirements | 2.29 | 2.38 | 2.15 | 2.25 | 2.38 | 2.28 | 2.68 |

the reorganized courses of study, improved faculties, and increased counseling of failing and mediocre pupils were closely associated with the changes in requirements for graduation and that they thus contributed definitely to the scholastic achievement of the pupils.

*General scholastic achievement.*—The general scholastic achievement of the graduates, measured by the scholarship-point averages, is shown in Table 2. This table indicates no significant differences under the former and the present requirements at any of the schools in the averages for all four years.

TABLE 3

MEANS OF SCHOLARSHIP-POINT AVERAGES EARNED BY GRADUATES RANKING IN FOUR QUARTERS OF ACHIEVEMENT UNDER FORMER AND PRESENT REQUIREMENTS IN THREE HIGH SCHOOLS

| School and Requirements of Graduation | Highest Quarter | Third Quarter | Second Quarter | Lowest Quarter |
|---|---|---|---|---|
| Central High School: | | | | |
| Former requirements | 3.00 | 2.43 | 2.05 | 1.57 |
| Present requirements | 3.03 | 2.46 | 2.09 | 1.70 |
| Westport High School: | | | | |
| Former requirements | 3.18 | 2.52 | 2.08 | 1.62 |
| Present requirements | 3.18 | 2.49 | 2.11 | 1.76 |
| Southwest High School: | | | | |
| Former requirements | 3.16 | 2.42 | 2.04 | 1.64 |
| Present requirements | 3.11 | 2.44 | 1.99 | 1.65 |

The relative achievements during particular high-school years indicate (1) a tendency under both systems for the scholastic averages to drop from the Freshman year to the Sophomore year and then to go up gradually during the last two years to a level close to that of the Freshman year and (2) small and insignificant differences in the marks earned during the corresponding years under the two systems for both boys and girls.

Table 2 also shows that, although the scholastic achievement in nonsolid subjects is apparently higher than in solid subjects (a condition resulting from differences in marking practices in the case of the two types of subjects), the scholastic averages in the subjects of either type, when considered separately, show no significant differences under the two systems of graduation requirements.

*Achievement at four levels of attainment.*—A comparison of achievement at each of four levels of attainment is shown in Table 3. At Central and Westport High Schools there are no significant differences in achievement in the three highest quarters and small gains

TABLE 4

WORK DONE IN THREE HIGH SCHOOLS IN SOLID AND NONSOLID SUBJECTS BY 1,200 GRADUATES RANKING IN FOUR QUARTERS OF ACHIEVEMENT UNDER PRESENT REQUIREMENTS

| School | Highest Quarter | Third Quarter | Second Quarter | Lowest Quarter |
|---|---|---|---|---|
| | Mean Number of Solid Credits | | | |
| Central High School: | | | | |
| Solid subjects | 25.09 | 23.96 | 23.20 | 23.87 |
| Nonsolid subjects | 5.74 | 6.22 | 6.62 | 6.28 |
| Westport High School: | | | | |
| Solid subjects | 25.48 | 25.00 | 24.00 | 23.49 |
| Nonsolid subjects | 5.08 | 4.98 | 5.68 | 6.04 |
| Southwest High School: | | | | |
| Solid subjects | 27.02 | 26.16 | 26.08 | 25.88 |
| Nonsolid subjects | 3.42 | 3.32 | 3.24 | 3.98 |
| | Mean Number of Scholarship Points | | | |
| Central High School: | | | | |
| Solid subjects | 78.20 | 55.00 | 46.20 | 38.60 |
| Nonsolid subjects | 16.40 | 15.55 | 15.40 | 12.90 |
| Westport High School: | | | | |
| Solid subjects | 81.80 | 62.00 | 49.60 | 34.40 |
| Nonsolid subjects | 16.15 | 13.65 | 13.70 | 14.95 |
| Southwest High School: | | | | |
| Solid subjects | 85.80 | 62.80 | 52.80 | 41.20 |
| Nonsolid subjects | 11.00 | 9.95 | 7.95 | 9.60 |

in the lowest quarter. At Southwest High School there are no significant differences in achievement in the two upper quarters and in the lowest quarter and only a slight decrease in achievement for the second quarter under the present requirements.

In Table 4 are given (1) the average number of solid credits earned in solid and nonsolid subjects and (2) the average number of scholarship points earned in solid and nonsolid subjects by the four quar-

ters of pupils graduated under the present requirements. A variety of practices is shown among the graduates of the three high schools with reference to the amount of credit earned in the two classes of subjects, but a comparison of the average number of scholarship points earned shows a tendency for the pupils ranking in the lower quarters in achievement to earn a larger proportion of the total scholarship points in nonsolid subjects. The ratio of the number of scholarship points earned in nonsolid subjects to the number of

TABLE 5

MEANS OF SCHOLARSHIP-POINT AVERAGES EARNED BY COLLEGE-PREPARATORY AND NON-COLLEGE-PREPARATORY GRADUATES OF THREE HIGH SCHOOLS UNDER FORMER AND PRESENT REQUIREMENTS

| School | College-preparatory Pupils | Non-college-preparatory Pupils |
|---|---|---|
| Central High School: | | |
| Former requirements | 2.45 | 2.06 |
| Present requirements | 2.56 | 2.06 |
| Westport High School: | | |
| Former requirements | 2.52 | 2.08 |
| Present requirements | 2.54 | 2.10 |
| Southwest High School: | | |
| Former requirements | 2.40 | 2.00 |
| Present requirements | 2.34 | 1.92 |

scholarship points earned in solid subjects, comparing the highest with the lowest ranking quarter, varies for Central High School from about 1 to 5 to about 1 to 3; for Westport High School, from about 1 to 5 to about 2 to 5; and for Southwest High School, from about 1 to 8 to about 1 to 4.

*Achievement among college-preparatory and non-college-preparatory pupils.*—Under both systems of requirements for graduation the scholastic achievements of college-preparatory pupils, as shown in Table 5, are significantly higher than the scholastic achievements of non-college-preparatory pupils, but a comparison of each type of pupil separately under the two systems indicates no significant differences in achievement.

*Relation to general scholastic achievement of age at entrance, elementary-school rating, and mental ability.*—As indicated in Table 6, the correlation of age at entrance with general scholastic achievement is small and in the negative direction under both systems of requirements for graduation. The correlations between elementary-school rating and general scholastic achievement and between mental ability and general scholastic achievement are close and approximately the same under both systems.

TABLE 6

CORRELATIONS OF SCHOLARSHIP-POINT AVERAGES WITH THREE OTHER FACTORS FOR GRADUATES OF THREE HIGH SCHOOLS UNDER FORMER AND PRESENT REQUIREMENTS

| School | Factor Correlated with Scholarship-Point Average | | |
|---|---|---|---|
| | Age at Entrance | Elementary-School Rating | Percentile Rank on Terman Group Test of Mental Ability |
| Central High School: | | | |
| Former requirements | −.236 | .622 | .498 |
| Present requirements | −.228 | .649 | .549 |
| Westport High School: | | | |
| Former requirements | −.289 | .631 | .478 |
| Present requirements | −.133 | .626 | .528 |
| Southwest High School: | | | |
| Former requirements | −.233 | .600 | .522 |
| Present requirements | −.163 | .703 | .471 |

*Number and characteristics of pupils requiring four and a half years or more for graduation.*—At Central High School the number of pupils requiring four and a half years or more to be graduated was 45 (12 girls and 33 boys) under the former requirements and 64 (11 girls and 53 boys) under the present requirements. The increase is primarily among non-college-preparatory pupils. Under the former requirements 27 of the 45 retarded graduates (60.0 per cent) were non-college-preparatory pupils; under the present requirements 47 of the 64 retarded graduates (73.4 per cent) were of the non-college-preparatory type. The significance of these differences is enhanced

by the fact that the Freshman enrolments and the number of graduates under both systems were approximately the same.

A comparison of the number of retarded graduates at Westport High School shows that there were 78 such pupils (20 girls and 58 boys) under the former requirements and 105 graduates (38 girls and 67 boys) under the present requirements. The increase is primarily among non-college-preparatory pupils. Under the former requirements 40 of the 78 retarded graduates (51.3 per cent) were non-college-preparatory pupils; under the present system 66 of the 105 retarded graduates (62.9 per cent) were of the non-college-preparatory type. Since the enrolments of Freshmen have been about the same under both systems and the number of regular graduates (those graduated in four years) has declined, these increases become more significant.

At Southwest High School the number of retarded graduates was 54 (11 girls and 43 boys) under the former requirements and 57 (13 girls and 44 boys) under the present requirements. Furthermore, under the former system 17 of the 54 retarded graduates (31.5 per cent) were non-college-preparatory pupils; under the present system 22 of the 57 retarded graduates (38.6 per cent) were of the non-college-preparatory type. However, since both the Freshman enrolments and the number of regular graduates have been much larger under the present requirements, the number of the retarded graduates is proportionately smaller under the present than under the former requirements.

A study of the characteristics of these graduates, as shown in Table 7, reveals that, except for the lower mental ability of those pupils graduated under the present requirements, the retarded graduates under both systems at Central High School are essentially of the same quality. At Westport High School, with the possible exceptions of lower mental ability of the girls and the lower age at entrance of the boys under the present system, these graduates are characteristically the same under both systems. At Southwest High School, with the exception of lower mental ability of those graduated under the present system, the retarded graduates are approximately the same under both systems.

TABLE 7

NUMBER AND CHARACTERISTICS OF PUPILS REQUIRING FOUR AND ONE-HALF YEARS OR MORE FOR GRADUATION UNDER FORMER AND PRESENT REQUIREMENTS IN THREE HIGH SCHOOLS

| SEX OF GRADUATES AND REQUIREMENTS OF GRADUATION | NUMBER OF GRADUATES | | MEAN PERCENTILE ON TERMAN GROUP TEST OF MENTAL ABILITY | MEAN AGE (IN YEARS) AT ENTRANCE TO HIGH SCHOOL | MEAN ELEMENTARY-SCHOOL RATING |
|---|---|---|---|---|---|
| | College-preparatory | Non-college-preparatory | | | |
| **Central High School** | | | | | |
| Boys: | | | | | |
| Former requirements | 13 | 20 | 53.39 | 13.93 | 1.85 |
| Present requirements | 16 | 37 | 43.70 | 13.67 | 1.89 |
| Girls: | | | | | |
| Former requirements | 5 | 7 | 60.56 | 13.62 | 1.88 |
| Present requirements | 1 | 10 | 25.00 | 13.79 | 1.88 |
| Both: | | | | | |
| Former requirements | 18 | 27 | 55.00 | 13.84 | 1.85 |
| Present requirements | 17 | 47 | 40.54 | 13.69 | 1.89 |
| **Westport High School** | | | | | |
| Boys: | | | | | |
| Former requirements | 32 | 26 | 55.86 | 14.04 | 1.88 |
| Present requirements | 34 | 33 | 52.76 | 13.62 | 1.86 |
| Girls: | | | | | |
| Former requirements | 6 | 14 | 50.50 | 13.55 | 1.92 |
| Present requirements | 5 | 33 | 35.00 | 13.72 | 1.94 |
| Both: | | | | | |
| Former requirements | 38 | 40 | 54.23 | 13.92 | 1.89 |
| Present requirements | 39 | 66 | 46.43 | 13.65 | 1.88 |
| **Southwest High School** | | | | | |
| Boys: | | | | | |
| Former requirements | 29 | 14 | 56.25 | 13.45 | 1.99 |
| Present requirements | 30 | 14 | 46.36 | 13.51 | 2.00 |
| Girls: | | | | | |
| Former requirements | 8 | 3 | 58.64 | 13.30 | 2.43 |
| Present requirements | 5 | 8 | 38.85 | 13.56 | 2.04 |
| Both: | | | | | |
| Former requirements | 37 | 17 | 56.77 | 13.42 | 2.08 |
| Present requirements | 35 | 22 | 44.65 | 13.52 | 2.01 |

## CONCLUSIONS

Based on the comparative analyses of school marks earned by graduates under the former and the present requirements, the following conclusions may be drawn:

1. The introduction of the graduation requirement of thirty-two credits and fifty-six scholarship points has produced no significant effect on the average level of scholastic achievement of the pupils graduated. Possible exceptions are (*a*) probably the presence of a slightly higher average of achievement under the present requirements in the case of graduates ranking in the lowest quarter of attainment and (*b*) perhaps the very small increase in the rate of growth of the year-to-year variation of the average level of achievement of the boys during their Junior and Senior years under the present requirements at Central and Westport High Schools.

2. The relative achievements in solid and nonsolid subjects, when considered separately, also have remained the same under both systems of requirements for graduation.

3. Pupils ranking in the lower quarters of achievement, particularly those represented in the lowest quarter, tend to acquire a large proportion of the required scholarship points in nonsolid subjects.

4. The increased requirements for graduation have produced no significant effect on the relations of age at entrance, elementary-school rating, and mental ability to the scholastic achievement of the pupils graduated.

5. The numbers and the proportions of pupils requiring four and a half years or more for graduation have increased under the present requirements. This increase, however, is among the non-college-preparatory pupils and may result primarily from concurrent social and economic influences rather than from the increased requirements for graduation. Furthermore, these special graduates under the present requirements are of lower mental ability than similar graduates represented under the former requirements.

6. Finally, any possible increase in the scholastic achievement observed under the present requirements is probably a result of improved courses of study, improved faculties, and the increased counseling of failing or mediocre pupils rather than a result of the scholarship-point system.

# A CLASS IN LEADERSHIP

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## THE POINT OF VIEW

The American secondary school has certain purposes which are conditioned by society. In line with these purposes, high-school administrators are today taking a positive attitude toward the extra-curriculum. Historically, the extra-curriculum was frowned on in its first stage as a frothy manifestation of youth which had no legitimate connection with the academic life of the school. In the next stage of growth the extra-curriculum was tolerated, and whatever regulation was attempted was for the purpose of preventing the development of evil features, such as competition for the time of the pupil. In the third stage administrators have adopted a positive attitude and are following procedures designed to encourage the participation of pupils in such activities. A fourth stage may be forecast in which the extra-curriculum will be held to be integrally a part of the true curriculum.

It is the contention of the writer that most of the material now extant with reference to the extra-curriculum concerns the "method of teaching" and that the actual activities found in the extra-curriculum have much of an opportunistic nature about them. Attention ought to be given to the "subject matter," or the "curriculum," of the extra-curriculum.

As an example consider the usual organization for pupil participation in the control of the school. Its activities will cover the control of traffic in the halls and on the stairways, keeping the premises tidy, smoking, library conduct, the presentation of some assemblies, maintenance of a lost and found bureau, etc. These activities are valuable and, if the student body is prepared to accept responsibility, desirable. But why not vitalize the organization and use it as an actual, positive aid in the fulfilment of the purposes of the secondary school? Cannot this organization aid in interpreting

the purposes of secondary education to the student body, aid in the development of scholarship, develop a public-relations program for the school in the community, consciously strive for the development of creativeness and responsibility in the student body, and do other things to make the student body aware of the needs of society and of the community nature of the school? If this viewpoint is adopted, the extra-curriculum becomes a special responsibility of social-science instruction which must energize the student body and provide it with leadership.

## THE CLASS AND ITS ACTIVITIES

The principal, Miss Nellie Marie Quinn, and the faculty of Parker High School of Chicago felt that the socialization program needed adequate leadership from the student body. They believed that, besides running through the parliamentary procedures of organizing activities, maneuvers connected with elections, and the run-of-the-mine problems concerning pupil participation in the control of a student body of thirty-five hundred pupils, the pupils should know the purposes of these procedures. To fulfil this need, a class known as "Social Science I" was organized, which has been meeting during the school year 1937–38 with the writer and the co-teacher, Hazel Rudoy. The faculty popularly knows it as the "leadership class."

As a condition for holding office, the president and the vice-president of the student body, all members of the president's cabinet, all class presidents, and the officials of the pupils' legislative bodies are required to register for this course. The total membership approximates thirty. These pupils are allowed to carry the course as an extra major, and full credit is given for it as a social-science elective. The class meets every day for a full period.

On three days a week consideration is given to the subject matter, which will be described later. Each Thursday there is a formal cabinet meeting. On Fridays the group attends the meetings of the school legislative body. At these meetings they are interrogated by the pupil delegates, propose measures for the consideration of the legislative body, and receive the mandate of this body. No action is taken by the legislative assembly until the entire student body has had an opportunity to discuss any project under consideration

and to instruct their delegates. As a device to secure this discussion, a circular of information is prepared by the student administration and is used as the basis of discussion in each home room in the school on the days before meetings of the legislative assembly. It will be seen that this plan provides a fine opportunity for a well-grounded leadership to give tone and purpose to the pupil-participation program. The principal's influence is exercised through the program for developing leadership and through the power of veto of acts of the legislative body.

The procedure of teaching in the leadership class is conditioned by the fact that material must be gathered from many sources. Pupil activity consists in special investigations and general discussion. The amount of lecturing by the instructor, sometimes as much as half the class period, would be regarded as excessive for an ordinary class. The lack of suitable literature at the high-school level affords some excuse for using the lecture here, however, in view of the high caliber of the members of the class and the necessity for insuring an adequate background for consideration of problems of leadership.

The first unit of the course deals with the question of leadership. An examination is made of the qualities and the procedures of leadership, including the principles of good political leadership and the preservation of cohesion within an administrative group. A practical illustration of the effect of this discussion can be given. At one cabinet meeting a member criticized the type of music played by the school band at the school dances, saying that it was no better than "tavern music." A large and influential group objected to the criticism on the ground that the music played was what the student body wanted. This group took the position that, if the pupils wanted music of that type, the duty of the administration was to give it to them. Other pupils, however, pointed out that in a previous discussion of leadership it had been shown that no leader became or remained a great leader by "riding on others' coattails" but that a leader has a goal. The application of this analogy was obvious, and a program was charted to bring about, by education and by example, a desire for a different type of music. It was perceived that the right of the group to be considered successful leaders depended on the success of this program.

The second unit of the course deals with the history of education, special attention being given to American education. Included here are a discussion of Spartan, Athenian, Roman, medieval, Renaissance, and American educational histories. In the discussion of the history of American education, attention is given to the story of the spread of common, free education in the United States, the history of the American secondary school, and the unique characteristics of the American secondary school. The purpose of this unit is twofold: to give an understanding (1) of how educational systems are conditioned by the societies of which they are a part and (2) of the present purpose of the American high school.

In the third unit the discussion passes to a consideration of the general trends apparent in society. The purpose of giving attention to such admittedly difficult material is to show the impingement of these trends on the high school and to secure a sympathetic understanding on the part of these pupils toward, for example, the development of responsibility or the advancement of hobby clubs as an aid to wise use of leisure time.

The fourth unit considers the history of pupil participation in the control of the American secondary school. The topics discussed are the stages through which pupil participation has passed, the story connected with each stage, what other schools in the nation are doing with pupil participation today, and what projects organized youth has executed in other sections of the nation.

Finally, study is given to the structure of their own organization for pupil participation in control—its merits, its shortcomings, its workings, and its history. The suggestion has been made that this unit ought to be located at the beginning of the course. This suggestion can be considered more fully after the topic has been taught and the effect of its placement observed.

As a further indication of the lines along which this course runs, the first test given is reproduced below. Because of administrative necessities the test also covers a portion of the second unit.

1. What are the characteristics of a successful leader? Analyze yourself with regard to these characteristics. What program of improvement can you suggest for yourself in those characteristics in which you feel you are weak?

2. What program could a genuine leader map out to reduce window breakage in the schools of Chicago?

3. How was Spartan education a reflection of the nature of Spartan society?

## RESULTS

A final statement concerning the success of this course cannot be ventured because at this writing the course is only two-thirds completed. Then, too, it is possible that several years might elapse before the effect of the course could be noted. Although not to be considered as conclusive evidence, the following list of projects suggested by the student leadership (none of which was proposed by the faculty) and carried out through the pupil-participation organization is of interest: (1) the formation of an alumni association which should be more than a social organization, an organization that would really keep in touch with the school and what it is doing; (2) an exchange of visits of delegations with every other high school in the city to study the problems of other schools; (3) the organization of a regular weekly assembly of an open-forum nature, to consider the problems of the student body; (4) the organization of every class in the school with an elected chairman and secretary and the formation of four committees in each class, namely, the clean-up committee (which assumes responsibility for the cleanliness of the room), the student-aid committee (which will provide tutors for pupils needing assistance), the test committee (which, at the discretion of the teacher, may formulate, assist with the formulation, or do other work in connection with tests), and the home-work committee (which, at the discretion of the teacher, may assign, regulate, mark, or perform other tasks in connection with home work); (5) the development of a publicity campaign for the parent-teachers' organization; and (6) the development of a public-relations program, including, as one feature, a dinner given at the school to sixty-five leaders of the community, which was followed by a tour of the school and visitation of classes. These projects were undertaken in addition to the usual work of the pupil organization, such as orientation of Freshmen, management of corridor and stairway guards, supervision of all clubs, sponsorship of moving pictures and regular dances, and management of elections.

# EVALUATING THE EDUCATION OF SECONDARY-SCHOOL LIBRARIANS[1]

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The Cooperative Study of Secondary School Standards has devised scales for evaluating the adequacy, the comprehensiveness, and the recency of education of classroom teachers[2] and of administrators of secondary schools.[3] In this article the Cooperative Study presents scales for evaluating the education of secondary-school librarians. As in the case of scales previously developed, only amount of formal education or credits won through classroom work, not personal qualities of the individual librarian nor the quality of his preparation, is measured with these scales. The effort is made to measure this preparation in five aspects: (1) *professional adequacy*, which is defined as the amount of educational credit in library science; (2) *general adequacy*, or college preparation in all fields except library science; (3) *academic comprehensiveness*, or education in subject-matter fields, both secondary and college preparation being included; (4) *educational comprehensiveness*, or preparation in educational subjects; and (5) *recency*, or date of last preparation in library science. It will be noted that the terms "education" and "preparation" are here used in preference to "training."

Full data regarding their secondary and post-secondary education were sought from all full-time librarians and part-time librarians in each of the two hundred secondary schools which collaborated with

[1] A report on one phase of the Cooperative Study of Secondary School Standards.

[2] M. L. Altstetter, "Scales for the Evaluation of the Training of Teachers," *School Review*, XLV (September, 1937), 529–39.

[3] M. L. Altstetter, "Evaluating the Education of Administrative Heads of Secondary Schools," *School Review*, XLVI (February, 1938), 108–17.

the Cooperative Study of Secondary School Standards[1] during the year 1936–37. Some records were not sufficiently full or definite for use in developing scales, but 108 librarians who devoted half-time or more than half-time to library duties provided records adequate for this purpose. Not more than one librarian (full-time or part-time) from any one school was included in the data used in formulating the scales. While it is recognized that 108 is a small number to serve as a basis for developing scales for evaluating school librarians, only that many were available in the two hundred schools. Since it is the purpose of the Cooperative Study to measure or compare schools rather than individual librarians, assistant librarians were not included lest the scales be unduly weighted by the larger schools. Even with this exclusion the small schools are not proportionally represented. However, it is felt that only persons who devote at least half their time to library service can properly be called "librarians." Many small schools do not have a librarian thus defined. Fourteen schools reported no librarian, and fifty-nine more had a teacher-librarian devoting less than half-time to library service.

All scales here presented provide for five ratings: *5*, which denotes "very superior" and includes approximately the 10 per cent rating highest; *4*, which denotes "superior" and includes about the next 20 per cent; *3*, which denotes "average" and includes approximately the middle 40 per cent; *2*, which denotes "inferior" and includes about the next lower 20 per cent; and *1*, "very inferior," including approximately the lowest 10 per cent of cases. The symbols used in the similar scales for the evaluation of the education of classroom teachers were *4*, *3*, *2*, *1*, and *0*. Since the publication of those scales the Executive Committee of the Cooperative Study of Secondary School Standards has decided to change the symbols to be used for purposes of rating. This change was authorized because it was found in other work done by the Study that the symbol *0* was sometimes

[1] For information concerning the history and methods of the Cooperative Study of Secondary School Standards and the choice and representative character of the two hundred schools on which the present article is based, see: (*a*) Walter C. Eells, "The Cooperative Study of Secondary School Standards," *Educational Record*, XVII (April, 1936), 273–89; (*b*) E. D. Grizzell, "The Cooperative Study of Secondary School Standards," *North Central Association Quarterly*, XII (July, 1937), 34–44.

objectionable for psychological reasons. It should be remembered that these numerals are simply convenient symbols, not mathematical quantities, when used in scales for purposes of rating, but in other situations the same numerals may be used to denote quantity.

### ADEQUACY OF PROFESSIONAL EDUCATION

A tabulation and distribution of credits in library science reported by librarians was made to determine their relative adequacy in professional education. Of the 108 librarians whose records were used in the formulation of the scale for professional adequacy, only nine had more than thirty semester hours of credit in library science and

TABLE 1

SCALE FOR EVALUATING ADEQUACY OF PROFESSIONAL EDUCATION OF LIBRARIANS

| Rating | Number of Semester Hours of Credit in Library Science |
|---|---|
| 1 | 0 |
| 2 | 1–6 |
| 3 | 7–29 |
| 4 | 30 |
| 5 | 31 or more |

none reported more than thirty-five semester hours of credit. Probably more significant is the fact that sixteen reported no credit in library science, four reported two semester hours of credit, six reported three hours, and three reported four hours of credit. More than 43 per cent of these librarians had less than a full semester of college credit in library science.

By way of comparison it may be stated that, of a sample of 586 classroom teachers representing all the usual subjects, 540 reported no preparation in library science, fifteen had one semester hour, fifteen had two hours, eight had three hours, six had four to eight hours, one had ten hours, and one had twelve hours of credit. In general, only one out of thirteen of these teachers reported credit in library science. A review of the records of school administrators indicates that their education in library science is not much, if any, better than that of classroom teachers.

### GENERAL ADEQUACY OF TRAINING

By definition, general adequacy of education for librarians includes all post-secondary education except credits in library science. A scale for evaluating this factor is given in Table 2. Reference to the distribution tables from which the scale of Table 2 was formulated indicates that four librarians had no general education beyond the secondary school and ten had less than sixty hours of college credit. Fifteen others had less than a hundred hours of college credit. This 27 per cent of the librarians seriously lowers the general average of adequacy of preparation in fields other than library science. About 60 per cent of the librarians have the equiva-

TABLE 2

SCALE FOR EVALUATING GENERAL ADEQUACY OF EDUCATION OF LIBRARIANS

| Rating | Number of Semester Hours of College Credit |
|---|---|
| 1 | 0–60 |
| 2 | 61–108 |
| 3 | 109–131 |
| 4 | 132–155 |
| 5 | 156 or more |

lent of the baccalaureate degree in general education, including about 5 per cent of the total who have the equivalent of the Master's degree or more. Even if credits in library science are added to other college credits, it is found that about 25 per cent of the librarians, as here defined, do not have the equivalent of a baccalaureate degree.

### ACADEMIC COMPREHENSIVENESS OF EDUCATION

In the development of scales for measuring preparation, "comprehensiveness" has been defined to mean diversity or variety of training while "adequacy" has denoted intensity in a limited field. "Comprehensiveness" in this article continues to have this meaning. In Table 3 it will be noted that variety of subjects is emphasized. In the development of the scale for measuring academic comprehensiveness, it was necessary to use two units of measurement. The forms on which the data regarding academic credits were collected did not call for such subdivisions as literature, composition, and

TABLE 3

BASIC DATA FOR DETERMINING ACADEMIC COMPREHENSIVENESS OF EDUCATION OF LIBRARIANS

| Subject-Matter Field | Amount of Credit in Field Required for Quantity Credit of— | | | | |
|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 |
| English | 0–27 semester hours | 28–35 semester hours | 36–49 semester hours | 50–60 semester hours | 61 or more semester hours |
| Mathematics | 0–11 semester hours | 12–15 semester hours | 16–23 semester hours | 24–33 semester hours | 34 or more semester hours |
| Foreign languages | Less than 1 full year in 1 language | 1 language, 1 year or more | 2 languages, 1 year or more in each | 3 languages, 1 year or more in each | 4 or more languages, 1 year or more in each |
| Sciences | 0–6 semester hours | 1 science | 2 sciences | 3 sciences | 4 or more sciences |
| Social studies | 0–2 social studies at least 3 semester hours each | 3 social studies | 4 social studies | 5 social studies | 6 or more social studies |
| Fine arts | None | 1 field, at least 3 semester hours | 2 fields | 3 fields | 4 or more fields |
| Practical arts | None | 1 field, at least 3 semester hours | 2 fields | 3 fields | 4 or more fields |
| Others (physical education, philosophy, general psychology, etc.) | None | 1 field, at least 3 semester hours | 2 fields | 3 fields | 4 or more fields |

Variety credits—1 for each field in which one or more quantity credits is scored

grammar in English, or algebra, geometry, and trigonometry in mathematics. It was therefore necessary to use semester hours as the unit of measure in these two fields. In the other subjects listed, subdivisions were called for, and number of foreign languages, of sciences, and of other fields was used for measurement. "Others" includes physical education, philosophy, general psychology, and other subjects that were written in. The basic data from which the scale itself is derived are given in Table 3. Both secondary-school and college credits are included in this table.

The use of Table 3 for determining the academic comprehensiveness of preparation requires some explanation. The following steps

TABLE 4

SCALE FOR EVALUATING ACADEMIC COMPREHENSIVENESS OF EDUCATION OF LIBRARIANS

| Rating | Credits Scored (Quantity plus Variety) |
|---|---|
| 1 | 0–15 |
| 2 | 16–19 |
| 3 | 20–23 |
| 4 | 24–25 |
| 5 | 26 or more |

are to be followed: (1) The scores by fields are first obtained from the table and totaled. (2) One variety credit for each field in which one or more credits was scored in Step 1 is added to this total. (3) The total obtained in Step 2 (quantity plus variety credits) is then referred to Table 4 for determining the actual rating of the librarian.

An illustration may be desirable. If a librarian has fifty-two hours of credit in English and fourteen in mathematics, has studied four foreign languages, has credit in two sciences and three social studies, and has at least three semester hours of credit in "others," his score in these fields would be: $3 + 1 + 4 + 2 + 1 + 1 = 12$. Since he has been credited with a score of 1 or more in six different fields, 6 is added to 12, totaling 18 credits. Reference to Table 4 indicates that 18 gives a rating of *2*. In foreign languages, sciences, and social studies a full unit or year of work is required for credit if the work was done in secondary school or six semester hours if the work was

done in college. If part of a unit of work was done in the secondary school and a sufficiently large fraction of six semester hours was done in college to make a total equivalent of a unit or six semester hours, credit is given.

### EDUCATIONAL COMPREHENSIVENESS OF PREPARATION

Another phase of comprehensiveness of education has reference to the amount of educational credits and the number of educational subjects, contrasted with academic subjects, in which preparation has been received. This phase is here designated as "educational comprehensiveness." Table 5 presents the basic data from which the

TABLE 5

BASIC DATA FOR DETERMINING EDUCATIONAL COMPREHENSIVENESS OF PREPARATION OF LIBRARIANS

| Score on Quantity Credits | Number of Semester Hours in Educational Subjects Required for Score |
|---|---|
| 0 | 0–2 |
| 1 | 3–12 |
| 2 | 13–24 |
| 3 | 25–39 |
| 4 | 40 or more |
| Variety credits | 1 for each educational subject |

scale for measuring educational comprehensiveness is derived, and Table 6 presents the scale itself.

To determine the comprehensiveness of preparation in educational subjects of a librarian, simply determine from Table 5 his score (quantity credits) on the basis of the number of semester hours of credit in educational subjects and add to this an additional credit for each educational subject in which he received college credit. Refer this total to Table 6 to secure the rating itself. A librarian who has a total of twenty-seven semester hours in nine educational subjects has a total of twelve credits (three quantity credits plus nine variety credits). Reference to Table 6 indicates that twelve quantity credits mean a rating of 5.

On the form on which the librarians reported their credits in education, thirteen educational subjects were listed: history of educa-

tion, principles of education, school administration, supervision, educational psychology, methods of teaching, practice teaching, guidance, mental hygiene, pupil activities, curriculum-making, statistics, and educational measurements. Space was provided for writing in others. In case a subject written in seriously overlaps with a listed subject in which the librarian has received credit, the subject written in is not to be counted in determining variety credits in Table 5.

Comparison of librarians with classroom teachers indicates that librarians are somewhat better prepared in English than are teachers who do not teach English or teach it less than half-time; they are

TABLE 6

SCALE FOR EVALUATING EDUCATIONAL COMPREHENSIVENESS OF PREPARATION OF LIBRARIANS

| Rating | Credits Scored (Quantity plus Variety) |
|---|---|
| 1 | 0 |
| 2 | 1–4 |
| 3 | 5–8 |
| 4 | 9–11 |
| 5 | 12 or more |

definitely less well prepared in mathematics than are non-mathematics teachers; slightly less well prepared in foreign languages than are non-foreign-language teachers; somewhat less well prepared in the sciences than are non-science teachers; slightly better prepared in the social studies than are teachers not teaching social studies or teaching such subjects less than half-time; and less well prepared in the fine and practical arts than are teachers who do not teach such subjects or teach them only one or two hours daily. In educational subjects librarians average about five semester hours less and at least one subject less than do classroom teachers.

## RECENCY OF EDUCATION

Recency of education, as already stated, is determined entirely by the date when the last preparation in library science was received. It was not possible to have a normal distribution in the scale for measuring recency of education. This scale is found in Table 7.

Large groupings in certain years, especially 1936, and gaps revealed by the distribution table used in the formulation of the scale indicated the division groups given in Table 7 as most advisable. The following statements indicate the irregular nature of the distributions. Twenty-five per cent of the librarians reported 1936 as the date of their last preparation; 17 per cent reported the years 1934 and 1935; 33 per cent indicated the years 1927–33, inclusive; and less than 9 per cent stated that they had received their last preparation before 1927. Five librarians gave no date of preparation in library science, and 16 had no such training. Of the 87 librarians who reported the date of preparation, 90 per cent received their last formal instruction in library science in 1927 or later, that is, within

TABLE 7

SCALE FOR EVALUATING RECENCY OF EDUCATION IN LIBRARY SCIENCE

| Rating | Date of Last Work Taken |
|---|---|
| 1 | Before 1926 |
| 2 | 1927–30 |
| 3 | 1931–33 |
| 4 | 1934–35 |
| 5 | 1936 |

the last ten-year period. Seventy-eight librarians have earned their last credits in library science since the beginning of the depression, 44 of them since 1933.

Library science constitutes the professional preparation of librarians. It may be interesting to compare recency of preparation in their professional field with recency of preparation of school administrators and teachers in educational subjects, which constitute their professional preparation. It was found that 82 per cent of a sample of school administrators had their latest professional preparation in the past ten years, 23 per cent of the sample being in 1936 or 1937. For classroom teachers the percentages are 74 and 17, respectively, for the same dates.

## SUMMARY AND CONCLUSIONS

In the two hundred secondary schools collaborating with the Cooperative Study during the year 1936–37, 108 librarians reported

data adequate for the purpose of constructing scales for measuring their preparation, a "librarian" being defined as a person who devotes at least half the school day to service in the library. Of these, sixteen did not report any courses in library science, and nearly half of the librarians had only the equivalent of a semester's work or less. Recent years have placed increasing stress on the importance of the library in the school. It is conceded on all sides that better libraries are needed everywhere. May we expect that libraries will be better than are the librarians in charge? Will good libraries (if, when, and where they are good) really function unless well-prepared librarians are in charge?

Judged by the librarians here studied, it seems that they are, as a class, less adequately and comprehensively prepared in both academic and educational fields than are classroom teachers; even when library science is included in the total, their preparation does not equal that of teachers. This difference may be accounted for by the large number of librarians who have had no preparation, except probably a few hours in library science, beyond the secondary school.

In recency of professional preparation librarians make a much better showing than do classroom teachers and somewhat better than do school administrators. The better-prepared librarians, particularly, try to keep informed regarding the newer practices in library service.

These comments should not be interpreted as derogatory to librarians. These workers are relatively a pioneer group, and the frontier always lags behind the developed areas. As a group, librarians probably deserve as much commendation, probably even more, than do other persons engaged in the educational task. All conclusions simply constitute statements based on an analysis of the sample studied. The scales here presented are being used as one means of evaluating the education of librarians and are one of the significant factors being used in an extensive analysis and comparison of the two hundred schools studied by representatives of the Cooperative Study of Secondary School Standards during the year 1936–37.

# SELECTED REFERENCES ON STATISTICS, THE THEORY OF TEST CONSTRUCTION, AND FACTOR ANALYSIS

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The following bibliography has been selected from issues of educational and psychological journals from March, 1937, to February, 1938, inclusive. Some books published during this approximate period have also been included.

Sharp distinctions do not exist between the fields covered in this list, but, as an assistance to the student with special interests in one or more of the fields, the references have been classified under the following categories: theory and use of statistical methods, problems of test construction, and factor analysis. No articles dealing primarily with the use of tests have been included because these items are distributed functionally in other lists in the cycle, such as those dealing with secondary-school instruction, guidance, etc.

## THEORY AND USE OF STATISTICAL METHODS

380. BARR, A. S., and MILLS, C. N. "A Short Method of Calculating the Standard Error of the Difference of the Means of Paired Items," *Journal of Experimental Education*, V (March, 1937), 313–14.

The authors prove that in the case of paired items the standard deviation of the differences is equivalent to the standard error of the difference between the means.

381. BLANKENSHIP, ALBERT B. "Regression and Standard Error Calculation from the Normal Equations," *Journal of Experimental Education*, V (March, 1937), 294–95.

Gives formulas for the regression equation, the regression coefficient and its standard error, and the standard error of estimate—all in terms of raw scores only.

382. BRADWAY, KATHERINE PRESTON, and HOFFEDITZ, E. LOUISE. "The Basis for the Personal Constant," *Journal of Educational Psychology*, XXVIII (October, 1937), 501–13.

The translation of a selection from Heinis' original article ("La Loi du développement mental," *Archives de psychologie*, No. 74 [1924], pp. 97–128), in which he proposed the personal constant as a substitute for the intelligence quotient.

383. CONRAD, HERBERT S., and KRAUSE, RUTH H. "An Extension of the Kelley-Wood and Kondo-Elderton Tables of Abscissae of the Unit Normal Curve, for Areas ($\frac{1}{2}\alpha$) between .4500 and .49999 99999," *Journal of Experimental Education*, V (March, 1937), 278–85.

Presents a table of the abscissas $\left(\frac{x}{\sigma}\right)$ corresponding to areas under the unit normal curve. The values of $\frac{x}{\sigma}$, with the exception of the last few, are given to six decimal places. A bibliography of nineteen titles is appended.

384. CURETON, EDWARD E. "The Accomplishment Quotient Technique," *Journal of Experimental Education*, V (March, 1937), 315–26.

An interpretation of various forms of the accomplishment quotient in terms of school effort, scholastic capacity, general effort, and general intelligence. Derivations of certain of the formulas are given in appendixes.

385. DUNLAP, JACK W. "Combinative Properties of Correlation Coefficients," *Journal of Experimental Education*, V (March, 1937), 286–88.

The formula is developed for combining into a single value the correlations for two or more distinct groups when all the individual means, standard deviations, and correlations are known.

386. DWYER, P. S. "The Use of Subcorrelation in the Analysis of Non-linear or Non-homoschedastic Correlation Charts," *Journal of Educational Psychology*, XXVIII (October, 1937), 541–47.

Suggests a means of determining variations in the predictive power within the distribution upon which the correlation coefficient is based. A numerical illustration is provided.

387. DWYER, P. S. "The Use of Subcorrelation in Determining the Predictive Power of High-School Grades," *Journal of Educational Psychology*, XXVIII (December, 1937), 673–80.

A discussion of the subcorrelation technique and its application to the problem of predicting college scholastic success from the high-school record. A complete work sheet is included for one of the examples.

388. EDGERTON, HAROLD A. "A Note on the Computation of the Correlation between Two Lengthened Tests," *Journal of Experimental Education*, V (March, 1937), 289.

The use of a previously published table (Harold A. Edgerton and Herbert A. Toops, "A Table for Predicting the Validity and Reliability Coefficients of a Test when Lengthened," *Journal of Educational Research*, XVIII [October, 1928], 225–34) is explained for the computation of the correlation between two lengthened tests.

389. EDGERTON, HAROLD A., and STARBUCK, EDMUND O. "A Table To Aid in the Computation of Fisher's '*t*' Function for Comparison of Two Means," *Psychometrika*, II (June, 1937), 77–84.

Derives and presents a table, calculated to five decimal places, to facilitate the computation of Fisher's "*t*" function for the comparison of two means.

390. GAVETT, G. IRVING. *A First Course in Statistical Method.* New York: McGraw-Hill Book Co., Inc., 1937 (second edition). Pp. x+400.

A textbook in statistical method designed to suit the needs of the student in any of a number of departments. The revised edition includes a new chapter on multiple and partial correlation.

391. GUILFORD, J. P. "Scale Values Derived from the Method of Choices," *Psychometrika*, II (September, 1937), 139–50.

Procedures are described for estimating scale values of judgments when the method of choices is employed.

392. HEILMAN, J. D. "The *k* and *g* Methods of Interpreting the Coefficient of Correlation," *Journal of Educational Psychology*, XXVIII (March, 1937), 232–36.

Hypothetical data illustrate the interpretation of *k*, which is equal to $\sqrt{1-r^2}$, and *g*, which is equal to $\sqrt{\frac{1-r^2}{2}}$.

393. KRAUSE, RUTH H., and CONRAD, HERBERT S. "A Seven-Decimal Table of the Area (*a*) under the Unit Normal Curve, for Abscissae Expressed in Terms of P.E.," *Psychometrika*, II (March, 1937), 55–66.

A table is given for the area under the unit normal curve, for abscissas expressed in terms of the probable error with successive values at intervals of .01. The article includes also a description of the construction of the table, a list of errors noted in previously published tables, and a bibliography of thirty-four references.

394. KUDER, G. F. "Nomograph for Point Biserial *r*, Biserial *r*, and Fourfold Correlations," *Psychometrika*, II (June, 1937), 135–38.

A nomograph for the computation of point biserial *r*, biserial *r*, and fourfold correlation coefficients is presented, with instructions for use.

395. KURTZ, ALBERT K. "The Simultaneous Prediction of Any Number of Criteria by the Use of a Unique Set of Weights," *Psychometrika*, II (June, 1937), 95–101.

Formulas are derived for determining the best weights for the independent variables when several criteria are available.

396. LINDQUIST, E. F. *A First Course in Statistics.* Boston: Houghton Mifflin Co., 1938. Pp. xiv+226.

This textbook, written for the nonmathematical student, places its emphasis on the uses, the interpretations, and the limitations of statistical techniques. A *Study Manual* of 122 pages is also available.

397. MOORE, THOMAS V. "The Reduction of Data Showing Non-linear Regression for Correlation by the Ordinary Product-Moment Formula; and the Measurement of Error due to Curvilinear Regression," *Journal of Educational Psychology*, XXVIII (March, 1937), 205–14.

Presents a method of changing the original scale of measurement so as to attain linear regression. Discusses the extent to which such correction may be superfluous.

398. ROSLOW, SYDNEY. "A Chart To Facilitate the Computation of the Correlation Ratios," *Journal of Experimental Education*, V (March, 1937), 292–93.

A form for the computation of the correlation coefficient and ratios, which is very similar to one that has been on the market for the past ten years.

399. SAFFIR, MILTON A. "A Comparative Study of Scales Constructed by Three Psychophysical Methods," *Psychometrika*, II (September, 1937), 179–98.

Makes comparisons of three methods of constructing scales. Two sets of data provide illustrative material.

400. THORNDIKE, EDWARD L. "On Correlations between Measurements Which Are Not Normally Distributed," *Journal of Educational Psychology*, XXVIII (May, 1937), 367–70.

Methods are suggested for measuring the relations between non-normally distributed series in cases in which the units of measurement should not be altered.

401. TILTON, J. W. "The Measurement of Overlapping," *Journal of Educational Psychology*, XXVIII (December, 1937), 656–62.

A table has been prepared to facilitate the computation of the percentage of overlapping of two normal distributions. The formula for the standard error of this percentage is developed, and the values of the standard errors are included in the table.

402. VOSS, HAROLD A. "A Nomograph for Estimating the Validity Coefficient of a Lengthened Test," *Journal of Experimental Education*, V (March, 1937), 290–91.

Presents a nomograph based on the ordinary formula for estimating the validity coefficient of a lengthened test.

### PROBLEMS OF TEST CONSTRUCTION

403. ADKINS, DOROTHY C., and TOOPS, HERBERT A. "Simplified Formulas for Item Selection and Construction," *Psychometrika*, II (September, 1937), 165–71.

Two arbitrary assumptions effect simplifications in the Pearson correlation coefficient of a dichotomous variable with a multiple-categorial variable.

404. BIRD, CHARLES, and ANDREW, DOROTHY M. "The Comparative Validity of New-Type Questions," *Journal of Educational Psychology*, XXVIII (April, 1937), 241–58.

Four classes of new-type questions on achievement tests are evaluated against the criterion of students' letter marks.

405. DICKINSON, Z. C. "Validity and Independent Criteria in Tests and Ratings," *Journal of Applied Psychology*, XXI (October, 1937), 522–27.

A theoretical discussion of the concept of validity, applied to tests and rating scales.

406. HILL, GEORGE E. "The Effect of Changed Responses in True-false Tests," *Journal of Educational Psychology*, XXVIII (April, 1937), 308–10.

A detailed analysis of changed responses in true-false tests administered at the college level.

407. KELLEY, VICTOR H. "An Experiment with Multiple Choice Vocabulary Tests Constructed by Two Different Procedures," *Journal of Experimental Education*, V (March, 1937), 249–50.

A method is suggested for constructing multiple-choice tests having plausible alternate responses. Special reference is made to vocabulary tests.

408. KUDER, G. F., and RICHARDSON, M. W. "The Theory of the Estimation of Test Reliability," *Psychometrika*, II (September, 1937), 151–60.

Several means of estimating test reliability are presented, each an approximation to the theoretically best estimate.

409. MERRILL, WALTER W., JR. "Sampling Theory in Item Analysis," *Psychometrika*, II (December, 1937), 215–23.

Application of chi square to test the homogeneity of both difficulty ratings and validity ratings of test items.

410. MESSENGER, HELEN R. "An Illustration of New Techniques in Test Construction," *Journal of Applied Psychology*, XXI (June, 1937), 311–19.

Description of a method of item selection, together with an example of its application at the college level.

411. PINTNER, RUDOLF, and FORLANO, GEORGE. "A Comparison of Methods of Item Selection for a Personality Test," *Journal of Applied Psychology*, XXI (December, 1937), 643–52.

The authors compare nine methods of selecting items for a personality test. The data include four subtests and two populations of one hundred cases each.

412. RINSLAND, HENRY DANIEL. *Constructing Tests and Grading in Elementary and High School Subjects*. New York: Prentice-Hall, Inc., 1937. Pp. xvi+324.

Contains rules for building several types of objective tests. Samples of each type are presented for most elementary- and high-school subjects. Discusses methods of converting test scores into marks.

413. SIMS, VERNER M. "A Note on Scoring the Rearrangement Test," *Journal of Educational Psychology*, XXVIII (April, 1937), 302–4.

The author's formula for scoring the rearrangement test is adapted to allow for guessing.

414. TOOPS, HERBERT A. "The Factor of Mechanical Arrangement and Typography in Questionnaires," *Journal of Applied Psychology*, XXI (April, 1937), 225–29.

Offers suggestions for setting up questionnaires in such a way that they may easily be understood by the respondent and quickly read by the investigator.

### FACTOR ANALYSIS

415. BARTLETT, M. S. "The Statistical Conception of Mental Factors," *British Journal of Psychology* (General Section), XXVIII (July, 1937), 97–104.

A theoretical discussion concerning the reality of the factors obtained by methods of factor analysis. Gives a definition and an interpretation of general, specific, and group factors in terms of the sampling theory.

416. BURT, CYRIL. "Methods of Factor-Analysis with and without Successive Approximation," *British Journal of Educational Psychology*, VII (June, 1937), 172–95.

The author compares Kelley's method of factor analysis with his own and with methods of other investigators.

417. BURT, CYRIL. "Correlations between Persons," *British Journal of Psychology* (General Section), XXVIII (July, 1937), 59–96.

Offers formal proofs of the consistency between the results of correlating persons and tests. A numerical example for hypothetical data is included.

418. DWYER, PAUL S. "The Determination of the Factor Loadings of a Given Test from the Known Factor Loadings of Other Tests," *Psychometrika*, II (September, 1937), 173–78.

"A technique is indicated by which approximations to the factor loadings of a new test may be obtained if factor loadings of a given group of tests and the correlations of the new test with the other tests are known."

419. HARSH, CHARLES M. "A Note on Rotation of Axes," *Psychometrika*, II (December, 1937), 211–14.

Presents a technique for the rotation of axes which can be applied to a set of tests having widely divergent communalities.

420. HOLZINGER, KARL J., and HARMAN, HARRY H. "Relationships between Factors Obtained from Certain Analyses," *Journal of Educational Psychology*, XXVIII (May, 1937), 321–45.

There are developed and illustrated with a hypothetical example the mathematical relations between Holzinger's bifactors and Thurstone's centroid, multiple-orthogonal, simple, and primary factors.

421. HOLZINGER, KARL J., and SWINEFORD, FRANCES. "The Bi-factor Method," *Psychometrika*, II (March, 1937), 41–54.

The bifactor method of factor analysis is described and illustrated with real data. A modification of the method, to include overlapping group factors, is also presented.

422. HOLZINGER, KARL J., assisted by FRANCES SWINEFORD and HARRY HARMAN. *Student Manual of Factor Analysis*. Chicago: Statistical Laboratory, Department of Education, University of Chicago, 1937. Pp. vi+102.

An introduction of factor analysis to the student of statistics. An outline of the bifactor method is followed by chapters relating this method to multiple-factor methods. A selected bibliography is included.

423. HORST, PAUL. "A Method of Factor Analysis by Means of Which All Coordinates of the Factor Matrix Are Given Simultaneously," *Psychometrika*, II (December, 1937), 225–36.

Develops formulas for describing $n$ variables in terms of $(m<n)$ factors, such that all $m$ factors are determined simultaneously.

424. LEDERMANN, WALTER. "On the Rank of the Reduced Correlational Matrix in Multiple-Factor Analysis," *Psychometrika*, II (June, 1937), 85–93.

A theoretical presentation of the criteria for determining the rank of the reduced correlational matrix.

425. ROFF, MERRILL. "The Relation between Results Obtainable with Raw and Corrected Correlation Coefficients in Multiple Factor Analysis," *Psychometrika*, II (March, 1937), 35–39.

Presents theorems concerning the effect of correcting correlation coefficients for attenuation upon (1) the rank of the correlational matrix, (2) the communality of the variable, and (3) the factorial matrix.

426. SPEARMAN, C. "Abilities as Sums of Factors, or as Their Products," *Journal of Educational Psychology*, XXVIII (November, 1937), 629–31.

Demonstrates the applicability of the theory of "two factors" when abilities are assumed to be products of factors instead of sums of factors.

427. THURSTONE, L. L. "Current Misuse of the Factorial Methods," *Psychometrika*, II (June, 1937), 73–76.

Lists five conditions assumed to be basic to factor theory.

# Educational Writings

## REVIEWS AND BOOK NOTES

*A textbook for a survey course in education.*—Of the many textbooks which have been written to meet the needs of introductory courses in education, some merely aim at the sampling of the various subjects of later professional study. A few, however, are aimed at the orientation of the student. A book of the latter type[1] has come from the press.

The authorship of this book is unique because it represents the combined effort of the education faculty of Stanford University. The volume has grown out of a co-operative course and is intended to serve as a textbook for introductory courses which have similar objectives, namely, "to change the student from a passively waiting, potential teacher to an actively enthusiastic prospective teacher; from an educationally uninformed prospective school patron, board member, or taxpayer to an inspired but intelligently critical one" (p. xiv). The philosophy on which the book is based is that "prospective teachers [should] understand from the first that the whole of their work is greater than the sum of its parts" and that "their concept of professional needs and problems must emerge in their thinking as an integrated and meaningful entity" (p. xiii).

The book contains thirty chapters organized into the following parts: (1) "What Is the Task of the School?" (2) "What Is the Role of the Teacher?" (3) "What Is the Role of the Administrator?" (4) "What Are the Roles of Other Specialized Workers?" (5) "What Are the Obligations of Higher and Adult Education?" and (6) "Education as a Life Career."

Many books written co-operatively have little unity and may be characterized as nothing more than compilations of unrelated essays by various writers. Such is not the case here. This book has been carefully prepared and edited, and as great a degree of unity has been achieved as is usually obtained in a general introductory textbook written by a single author. The very fact that the book is written by a group of experts gives it a degree of authority impossible in an introductory volume written by a single author or by a small group of authors.

The book gives evidence of careful organization and thorough preparation. It is doubtful, however, whether it will be easily and intelligently read by under-

[1] Stanford University Education Faculty, *The Challenge of Education: An Introduction to Education*. New York: McGraw-Hill Book Co., Inc., 1937. Pp. xiv+472. $3.00.

graduate students. In those institutions where professional education begins in the undergraduate school, this work will best serve as a textbook in a final course in education in which the aim is unification and integration. In schools where professional education begins with graduate work, this publication may be used as a textbook in an introductory course. Each chapter, with the exception of the first, closes with a list of references. In too many cases these lists lack completeness. It is to be regretted that more attention was not given to the choice of profitable references. Likewise, it is to be regretted that no learning exercises were included. Such exercises, developed co-operatively by the group of experts represented by the authorship of this book, would have had real value to students and instructors alike who will use this textbook.

The book meets a real need and makes a distinct contribution to the literature of the field. It is all that its name implies.

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*Human behavior and mathematics.*—Mathematical approaches to psychological problems continue to receive increasing attention. At least two movements in this direction are of outstanding note. The first, the relatively recent movement of topological psychology, is represented by Kurt Lewin's work. The second, an older approach historically which is receiving more and more emphasis, is represented by Spearman's long series of researches, extended in recent years into elaborate factor analyses in the work (to mention only a few) of Spearman, Kelley, Thurstone, and Holzinger.

The last mentioned has issued a planographed publication,[1] the primary purpose of which is "to assist the beginning student in factor analysis" (p. iii). It includes, in order, chapters concerned with "The General Problem of Factor Analysis," "Elementary Statistical Concepts of Factor Analysis," "Outline of Simple Bifactor Analysis," "Estimation of Factors," "The Complete Analysis of Fourteen Tests [from the Moosehart study]," "Multiple-Factor Analysis," "Relationships between Factors Obtained from Certain Analyses," and "Boundary Conditions." An excellent bibliography on factor analysis is included. A comparison of Holzinger's method with Thurstone's is given. Unfortunately, space prohibited a comparison with other methods, such as those of Hotelling and Kelley, but the author promises such comparisons in the future.

The manual will undoubtedly be received with interest by students of factor analysis. It is, in effect, exactly what the author claims for it: a guide to the student of factor analysis. It is somewhat more restricted in volume and scope than is Thurstone's *The Vectors of Mind*. Holzinger's method is really a bifactor

[1] Karl J. Holzinger, assisted by Frances Swineford and Harry Harman, *Student Manual of Factor Analysis*. An Elementary Exposition of the Bi-Factor Method and Its Relation to Multiple-Factor Methods. Chicago: Statistical Laboratory, Department of Education, University of Chicago, 1937. Pp. vi+102. $1.50.

method, and he claims that it is more simple than other current methods and does not require so much mathematical preparation. In the reviewer's opinion, the success of Holzinger's book as a student manual will depend largely on the presence of an able instructor. It is hardly conceivable that the present complexion of graduate students in schools of education will yield any but small groups with sufficient mathematical background to participate, in a critical fashion, in such work. To quote Thurstone, "If a student has the intention of attaining some competence in factor theory and in related statistical work, there is no short cut for formal courses in the mathematics that is involved" (*The Vectors of Mind*, p. 1. Chicago: University of Chicago Press, 1935).

To the reviewer much of the interest in Holzinger's manual lies in his discussion of the relation between his own work and that of others. Hence the promise of future publications concerned further with this relation is of special interest. There seems to be no serious conflict between the statistical or mathematical methods used by Holzinger and Thurstone. Yet the conclusions which they draw are not in agreement. The reviewer has stated elsewhere that the conclusions drawn by Holzinger and Spearman seem more nearly in accord with the neurological data than those of some other investigators ("The Psychological Basis of Grouping," *The Grouping of Pupils*, pp. 101–3. Thirty-fifth Yearbook of the National Society for the Study of Education, Part I. Bloomington, Ill.: Public School Publishing Co., 1936), but much work must be done before any but the most tentative conclusions can be drawn.

Sometime in the far distant future human behavior may be described by mathematical symbols, but one is entitled to some skepticism. The intricate mathematical structures now being reared are not necessarily true analyses of human behavior. Brain functioning is not necessarily adequately interpreted by topological, geometrical, or algebraic concepts. Nevertheless, the type of work that Holzinger and others are doing is of great value. Perhaps if a Lashley and a Spearman could be combined in one person, advance might be more rapid.

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*Notable textbooks in American history.*—Much activity in the preparation of American history textbooks at the senior high school level has been evident during the past two years. Three new books[1] in this field deserve praise. The use in each book of the term "unit" in the table of contents to designate subject-

[1] *a*) Ralph Volney Harlow, *Story of America*. New York: Henry Holt & Co., 1937. Pp. xii+812+xliv. $2.20.

*b*) Harry J. Carman, William G. Kimmel, and Mabel G. Walker, *Historic Currents in Changing America*. Philadelphia: John C. Winston Co., 1938. Pp. x+854. $2.40.

*c*) Leon H. Canfield, Howard B. Wilder, Frederic L. Paxson, Ellis Merton Coulter, and Nelson P. Mead, *The United States in the Making*. Boston: Houghton Mifflin Co., 1937. Pp. viii+842+xxviii. $2.20.

matter divisions is evidence of the imprint that Morrison has made in the field of educational terminology. Certainly the presentation of subject matter in each of these textbooks is less encyclopedic than has been that in the textbooks at the high-school level published before 1930. Each of the books is a voluminous presentation of historical material selected, in the main, for its interest value and focused, in most instances, on predetermined intellectual objectives. Economic, social, and political aspects of our country's past are given appropriate attention in these books, and the international aspects of our history are adequately treated. The three books are attractively bound and contain vivid pictures, interesting illustrations, and carefully prepared maps. Teaching material is amply supplied, and it is evident that the authors have concerned themselves with the learning processes of the pupils who will use the books.

*Story of America* is more truly a unitary organization than are the other two books. Harlow has provided a book of eight units, which explain "How the First Americans Laid the Basis for Our Present Ways of Living," "How Americans of the Revolutionary Era Established an Independent Government," "How Venturesome Americans Spanned the Continent," that "America Nearly Became Two Nations," that "The United States Became an Industrial Nation, with New and Greater Problems," "How the People Tried To Adjust the Relations of Big Business and the Government," "How Our Nation Has Dealt with Its Neighbors," and "How We Attack Present Problems and Look toward the Future."

The first division of this book (called a unit) is rather encyclopedic in character. The author in chapter i explains what history is and how it helps us to understand our time, how history is written, and how to avoid being misled by poor books and poor writers, how *Story of America* is arranged and what its purposes are, and how American history differs from the history of other nations. The scope of the second unit may be grasped from the first sentence, which states that "English plans for solving post-war problems aroused American opposition" (p. 109), and the last sentence, which states that "the American people really were all Republicans and all Federalists as Jefferson had suggested in his first inaugural address . . . ." (p. 199). Units III and IV are well presented and are treated in the conventional chronological manner. Units V and VI bring together the mass of historical incidents and movements, so difficult to organize, that occurred following the year 1877. The author, in his summary of Unit VI, states that "American history from Harrison to Hoover leaves everyone with a feeling of uncertainty and confusion" (p. 604). The author handles this period very creditably. Unit VII explains the early stages of American participation in world-affairs, traces the movement, and concludes with a description of the mad contests in 1936–37 that threatened Europe and the present policy of the United States. The final unit devotes ninety-one pages to the problems of government, the need of economic security, the New Deal, and cultural progress.

*Story of America* is printed on a two-column page. Because of the lack of experimental evidence, the advisability of this form is questionable. Obviously

there are advantages, but evidence in the field of reading does not indicate justification of the plan.

*Historic Currents in Changing America* is a well-written book of nine units that "focus the attention of students on those major currents from the past which are influencing the present course of the stream of American life" (p. iii). The titles of the units follow: "Discovery and Colonization," "Independence and Union," "The New Nation," "Democracy and Expansion," "Two Nations or One?" "The Nation Turns to Business," "Imperialism and Reform," "The United States as a World Power," and "The Quest for the More Abundant Life."

The authors of this volume do not include an introductory chapter of the type of that given in *Story of America*. With this exception, the first unit in both books presents much the same type of material. In the first unit of *Historic Currents in Changing America* the many lines of activity are woven together in an interesting manner. Unit II is devoted to a discussion of the causes of friction before 1763, the British policy after 1763, the story of the American Revolution, and the making and the ratifying of the Constitution after the period of the Confederation. A chronological treatment of the chief incidents from 1789 until 1812 is given in the third unit. The concluding division of the unit is entitled "The United States and Great Britain Keep the Peace," in which events as late as 1854 are related. Units IV and V continue the story, in chronological order, ending with the rebuilding of the South. The period from 1877 to 1898 is described in five chapters in Unit VI. The authors have related the events of these years and have focused them on definite intellectual objectives. Unit VII contains a mass of historical material, much of which must be considered important as ends rather than as means to an end. Units VIII and IX bring the story of American history down to the present. The final two chapters on the New Deal are carefully and impartially written. *Historic Currents in Changing America* is a very teachable book. The previews for each unit are excellent. Each chapter (rather than each unit as in the case of *Story of America*) contains a large and varied array of teaching and study materials.

The third textbook, *The United States in the Making*, consists of the following eight units: (Part One) "In Which England Builds Up a Mighty Empire Only To See Her American Colonies Successfully Revolt," "In Which Thirteen Independent States Become a Single Democratic Nation," "In Which Economic Life, Society, and Culture in America Undergo Some Significant Changes," "In Which the Nation Expands, Is Rent by Civil Strife, but Is Finally Reunited"; (Part Two) "In Which the United States Grows from a Small Agricultural Country into a Great Industrial Nation," "In Which the Social and Cultural Outlook in America Changes," "In Which the United States Abandons a Policy of Isolation To Play a Leading Role in World Affairs," and "In Which Parties and Political Leaders Struggle for Supremacy." This book is more definitely a chronological presentation of historical materials (topically treated) than are the two books already considered. Fifty-five chapters comprise the eight units.

*The United States in the Making* is a scholarly book. The publishers have succeeded in bringing together a group of competent classroom teachers and historians. There is much to be said in favor of joint authorship in textbook-writing, and the authors of this volume represent experienced high-school teachers as well as recognized outstanding scholars in the field.

Unlike the other two books, this textbook includes the story of the American Revolution in the first unit, which is a chronological presentation of subject matter from the time of European expansion until 1783. The second unit continues the story and traces it in all the many diverse channels to the middle of the nineteenth century. In Unit III a summary is made of American progress around the mid-century, and Unit IV traces the sectional conflict between the North and the South. An interesting six-page "Preview" is given of Part Two. Unit V, the first in the second part of the book, contains nine chapters and is rather encyclopedic in character. Unit VI is a short but interesting story of the changes in the social and the cultural outlook in America, and the final two units complete the story of our nation's past. Unit VII, dealing with the country's entrance into world-affairs, is particularly well organized, and the subject matter definitely focuses on the theme at hand. The book concludes with a discussion of Franklin D. Roosevelt's New Deal administration, which is presented briefly but interestingly. *The United States in the Making* is certain to be a valuable addition to the literature of the field.

A critical comparative review in the case of these three textbooks would be unwise and unfair. All are excellent, each having features peculiar to itself and all characterized by conformity to good educational procedures.

ROBERT B. WEAVER

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*Achievement of girls and women in motor skills.*—The development of measures of achievement has, for several years, been generally recognized as a definite need in physical education. A large number of tests in physical activities have been proposed, but in only a few cases have well-authenticated norms been established for the evaluation of achievement. A recent publication of achievement scales[1] makes a valuable contribution to the number of instruments available for measuring performance of secondary-school girls and college women. Achievement scales and directions are provided in archery, baseball, basketball, field hockey, running events, soccer, speedball, swimming, volleyball, and tennis.

The book explains how achievement scales can be used in physical education for measuring progress in the acquisition of skills, diagnosing strengths and weaknesses, classifying students, arranging membership on teams, rating students in fundamental skills of sports, evaluating teaching techniques, and collecting data for research.

[1] Frederick W. Cozens, Hazel J. Cubberley, and N. P. Neilson, *Achievement Scales in Physical Education Activities for Secondary School Girls and College Women.* New York: A. S. Barnes & Co., Inc. 1937. Pp x+166. $2.00.

The tests included are intended to measure achievement in specific fundamental skills. They will not provide an index of general ability in a game. These measurements will be of much value, however, in helping teachers to compare relative abilities, to measure present accomplishment, and to find the kind of activity in which improvement is needed.

When these achievement scales were constructed, it was found that age, height, and weight were not significant factors in determining achievement. Each group, consequently, was considered to be homogeneous, and the scoring was done by the equal-step interval plan. The range of performance covers three standard deviations on each side of the mean. In the scale for each event a point value, or score, of 50 was assigned to represent the performance level at the mean, a score of 100 for the performance level at three standard deviations above the mean, and a score of 0 at three standard deviations below the mean. An increment for any particular scale may be found, therefore, by dividing six times the standard deviation by 100.

All the scales are constructed alike. This fact means that the same score in different events represents equivalent performances. A score of 75 in the soccer dribble, for example, represents the same level of performance as a score of 75 in swimming fifty yards in free style. In explanation of the scales it might be said that all the performances have been reduced to a common denominator. This technique makes it possible to add or to average scores in different events to secure a composite score. A total score of this kind is valuable in obtaining a measure of the cross-section of the ability of a student in any sport or in several sports.

The research techniques and the statistical procedures used in the preparation of this report seem suitable and appear to have been applied in an accurate manner. The material has been prepared in a convenient and usable form, and it should prove of great value to teachers of high-school girls and college women. This book provides the means of helping to place physical education on a more scientific basis than it has been in the past.

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*Problems in general science.*—Science-teaching claims responsibility for cultivating an appreciation of science but has perhaps emphasized appreciation only for the desirable outcomes of applying science. As the authors of a recent textbook[1] point out, the other outcomes must continue, as in a prescientific age, to be blamed on demons. It is time, the authors believe, to recognize that, while knowledge is indeed power, the increase of power does not always justify itself as an addition to the welfare of mankind. The authors consider that, in addition to gains in power, there are other kinds of values and satisfactions to be dealt with in science-teaching, namely, the appraisal of a mechanistic versus a magical explanation for natural phenomena—such as weather, floods, and disease—and

[1] Benjamin C. Gruenberg and Samuel P. Unzicker, *Science in Our Lives*. Yonkers-on-Hudson, New York: World Book Co., 1938. Pp. xiv+750. $1.76.

an evaluation of the scientific versus a ritualistic method of managing such happenings. There must necessarily be decision on the question of whether the vast universe of the modern astronomer is more valuable than a geocentric universe.

Science-teaching further claims to explain and to interpret natural phenomena. The authors feel, therefore, that a textbook in science should clearly distinguish between facts or phenomena and the theories designed to explain them. The pupil in beginning science should be urged to make a supposition and to proceed to evaluate the adequacy and the reasonableness of his supposition. Whereas the authors emphasize the value of scientific methods as against less critical means of forming conclusions, they would have pupils realize that scientific conclusions may be, and frequently are, altered or replaced.

With this philosophy of instruction in mind, the authors have prepared a textbook in general science for use in the early years of the secondary school. The book consists of eight units: "The Air around Us," "Water," "Fire," "The Earth in Space," "Controlling the World" (dealing with work, power, machines), "Electricity," "Being Alive," and "Grasping Our World" (sound and hearing, light and sight, knowing, feeling, and doing).

Each unit of material is divided into chapters, the content of which is organized around the solving of major problems. The text is presented in a continuous body. The experiments and other activities are placed at the ends of the chapters. Reference is made in the text to these activities, and the experiments are designed to be performed before the reading of the text material. Each chapter culminates in a summary followed by questions and the list of activities.

An opening section of the book, "To Begin With," is written to orient the pupils in the purpose, the method, and the scope of the study of science as it relates to them. The entire book is adequately illustrated.

All authors of textbooks in science for the early years of the secondary school are faced with many problems. The problems of the selection of content, of difficulty of material, of method of presentation, and of organization—all must be coped with before a successful book can be completed. How satisfactorily the authors of *Science in Our Lives* have met these problems is a matter of opinion. The content is interesting. The organization will seem traditional to some teachers of science. The method of presentation is logical and psychological. The book shares with many others of its kind the fault of presenting reading difficulties to pupils of early secondary-school grades. It is probable that the authors assume that it will be used in Grades IX and X rather than in Grades VII and VIII. If the book is used in the more advanced grades, the reading fault will naturally be much less evident. It is the reviewer's opinion that the book in general science is yet to be written which deals adequately with the problem of reading difficulties and text understanding. Viewed as a whole, *Science in Our Lives* is a distinct contribution to the field of science in the early secondary school.

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